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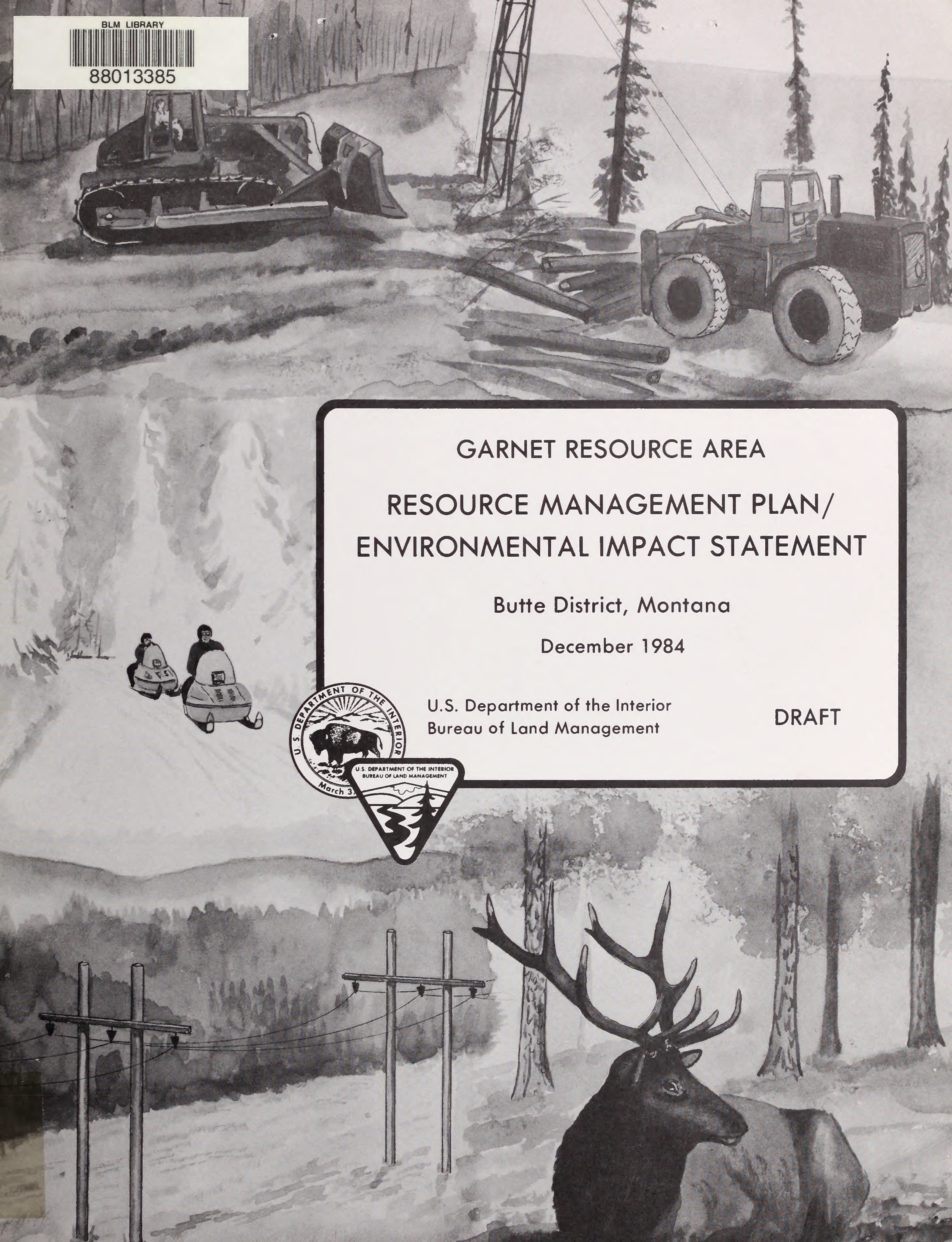

GARNET RESOURCE AREA

RESOURCE MANAGEMENT PLAN/ ENVIRONMENTAL IMPACT STATEMENT

Butte District, Montana

December 1984

U.S. Department of the Interior
Bureau of Land Management

DRAFT

BLM-MT-ES-85-002-4410

As the Nation's principal conservation agency, the Department of the Interior has responsibility for most of our nationally owned public lands and natural resources. This includes fostering the wisest use of our land and water resources, protecting our fish and wildlife, preserving the environmental and cultural values of our national parks and historical places, and providing for the enjoyment of life through outdoor recreation. The Department assesses our energy and mineral resources and works to assure that their development is in the best interests of all our people. The Department also has a major responsibility for American Indian reservation communities and for people who live in Island Territories under U.S. administration.

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United States Department of the Interior
BUREAU OF LAND MANAGEMENT

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Dear Reader:

This draft Resource Management Plan/Environmental Impact Statement (RMP/EIS) for the Garnet Resource Area is presented for your review and comment. This document outlines five major alternatives for managing the public land in the Garnet Resource Area. These alternatives are designed to resolve the many land management issues that were identified during the early stages of the planning process.

This RMP describes the alternatives in terms of management areas. The management area concept is explained in the section entitled How To Use This Document.

We would appreciate your comments on this RMP/EIS by March 13, 1985. Questions or comments should be directed to Dave Baker, Project Manager, Garnet Resource Area Office, 3255 Fort Missoula Road, Missoula, Montana 59801.

A formal public hearing will be scheduled to allow individuals to present testimony on the draft plan and EIS. This hearing is required for the wilderness suitability recommendations contained in this document, but testimony on all portions of the plan is encouraged. The hearing will be held at the following location:

Date	**Location**	**Time**
February 13, 1985	Garnet Resource Area Office 3255 Fort Missoula Road Missoula, Montana 59801	3:00 to 5:00 p.m. and 8:00 to 9:00 p.m.

In conjunction with this hearing, there will be an open house at the same office on the same day as the hearing, running from 10:00 a.m. to 3:00 p.m. and 6:00 to 8:00 p.m. This open house will give you an opportunity to discuss the RMP/EIS with the resource specialists who participated in its development. An additional open house will be held in Drummond, Montana in mid-February. The time and place will be announced at a later date.

All comments, whether written or oral, will be given equal consideration in the preparation of the final Resource Management Plan/Environmental Impact Statement. I hope that through your participation in this effort we can move together toward a common goal of improved public land management in the Garnet Resource Area.

Sincerely yours,

Marvin LeNoue

Acting State Director

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DRAFT

RESOURCE MANAGEMENT PLAN/ ENVIRONMENTAL IMPACT STATEMENT

For The

GARNET RESOURCE AREA
BUTTE DISTRICT

Prepared By

BUREAU OF LAND MANAGEMENT
DEPARTMENT OF THE INTERIOR

Marvin LeNoue

ACTING STATE DIRECTOR
MONTANA STATE OFFICE
DECEMBER 1984

Bureau of Land Management
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Bldg. 50, Denver Federal Center
Denver, CO 80225

HOW TO USE THIS DOCUMENT

PUBLIC REVIEW

This draft Resource Management Plan and Environmental Impact Statement (RMP/EIS) documents the process by which the Garnet Resource Area has evaluated alternative management plans and selected the preferred plan. As a member of the public who is affected by this choice, your review of this draft will help the Garnet Resource Area to incorporate your concerns into the final RMP/EIS. Your comments will be most effective if they clearly point out areas where you wish to add information that is critical to the analysis process but has not been included, where you feel information is not correctly stated, or where you disagree with conclusions (please include your reasons for favoring a different conclusion).

THE MANAGEMENT AREA CONCEPT

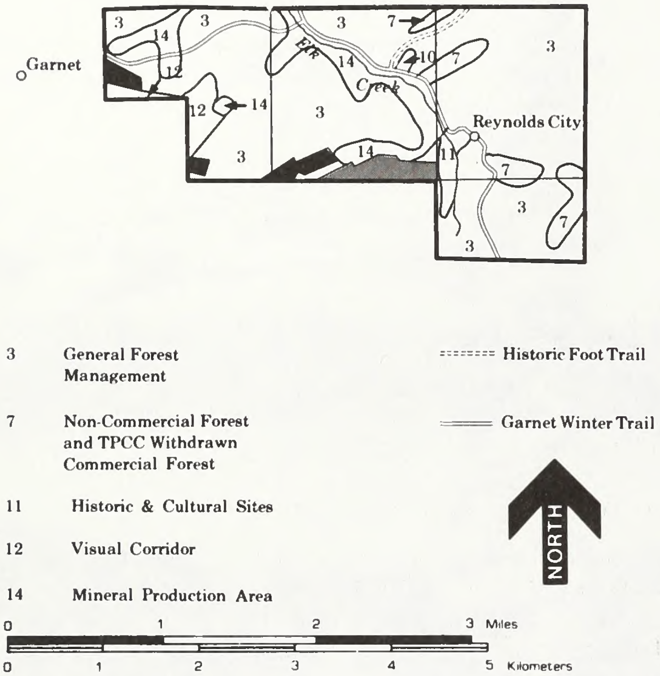
The Garnet RMP/EIS is based on the concept of management areas as developed by the Lolo National Forest Plan (USDA, FS 1982b). First, the capabilities of the land are evaluated in a resource inventory. Then, possible management options, appropriate for managing the resources on the land, are developed. (Fourteen different management area prescriptions were developed for the Garnet RMP and are listed in Appendix A.) Next, the capabilities of a given area of land is matched with an array of management options; all of the options are compatible with the multiple use management directives of the BLM but give emphasis to different resources. Finally, the management options for all lands are arranged into five alternative management plans. (The management area assignments for each alternative in the Garnet RMP are shown on the Alternative maps in the map packet.)

To understand this process, let's look at the headwaters area of Elk Creek east of Garnet Ghost Town. The Proposed Management of Upper Elk Creek maps show the location of important features. This area has extensive logged commercial timber interspersed with regenerating forests, some unlogged forest, and natural mountain grassland parks. The area contains several sites of cultural and historic interest—Reynolds City, its cemetaries, and outlying mine sites. Also a historic foot trail follows a tributary of the creek. The western portion of the area forms a scenic backdrop for Garnet Ghost Town. Extensive mining has occurred in the area, and most of Elk Creek has been disturbed by placer mining. The area draws many recreational visitors who use the winter recreation trail, visit Garnet Ghost Town, sightsee, and hunt. There is moderate use of the area by deer and elk. Livestock use is dispersed over the area.

Several management area prescriptions were selected as appropriate to manage the mix of resources in this area. Management Area 3 (MA 3) represents commercial forest land managed to maximize site productivity and sustained yield. MA 7 repre-

PROPOSED MANAGEMENT OF UPPER ELK CREEK

Alternative A



Garnet
Elk Creek
Reynolds City
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7
10
11
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14
3 General Forest Management
7 Non-Commercial Forest and TPCC Withdrawn Commercial Forest
11 Historic & Cultural Sites
12 Visual Corridor
14 Mineral Production Area
Historic Foot Trail
Garnet Winter Trail
NORTH
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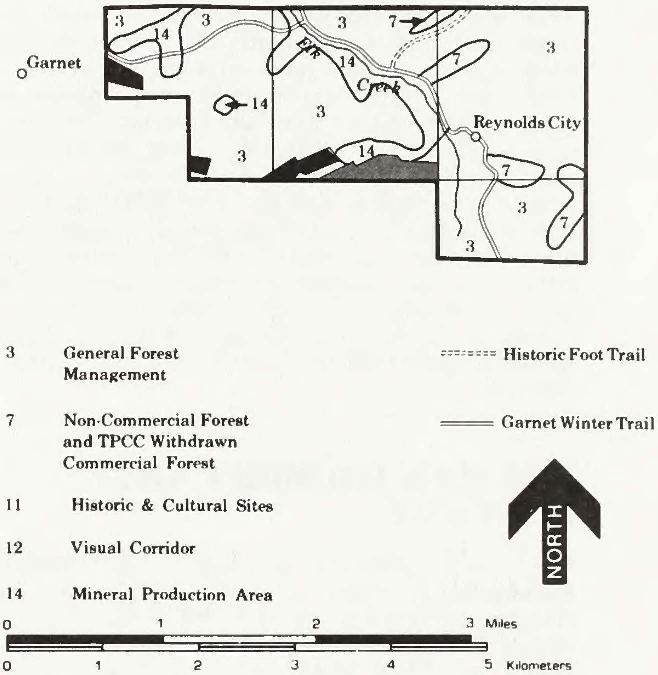
0 1 2 3 4 5 Kilometers

PROPOSED MANAGEMENT OF UPPER ELK CREEK

Alternative B



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Garnet Winter Trail
NORTH
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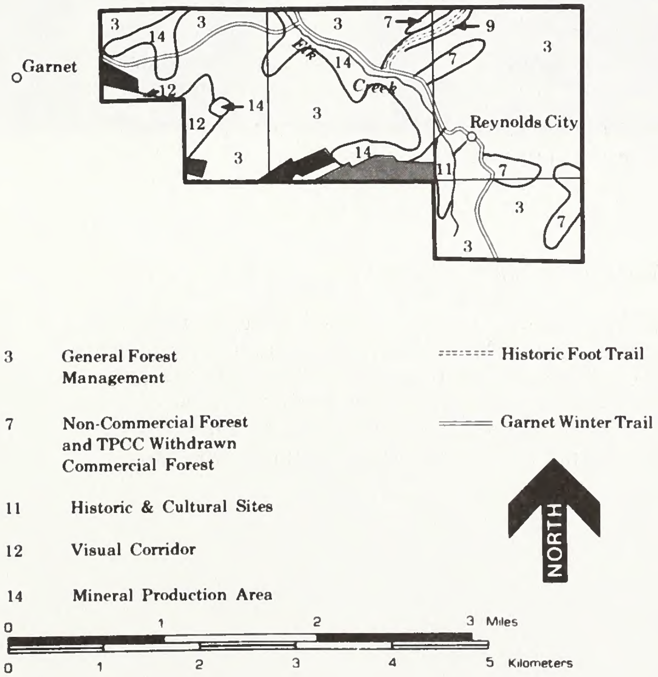
0 1 2 3 4 5 Kilometers

PROPOSED MANAGEMENT OF UPPER ELK CREEK

Alternatives C and D



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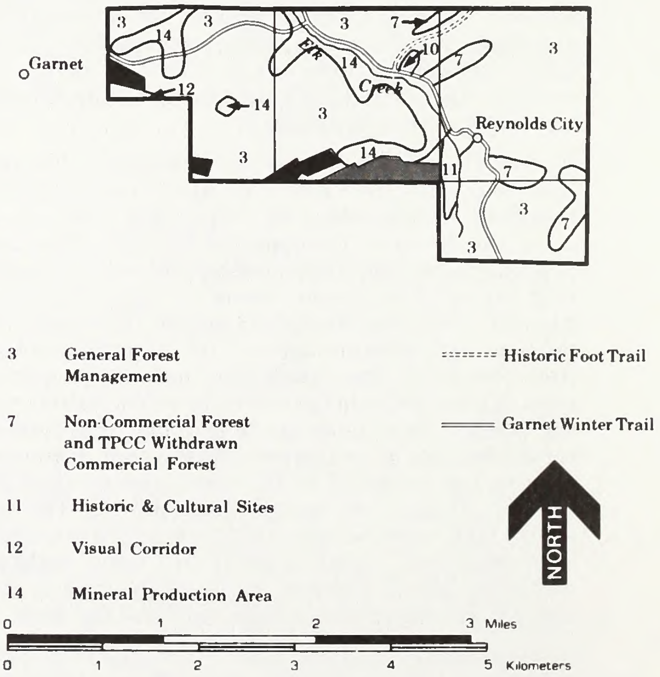
0 1 2 3 4 5 Kilometers

PROPOSED MANAGEMENT OF UPPER ELK CREEK

Alternative E



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0 1 2 3 Miles
0 1 2 3 4 5 Kilometers

sents noncommercial forest land managed to maximize site productivity and water quality. MA 9 represents a special management area that protects a unique site. MA 11 represents historic and cultural sites. MA 12 represents areas of scenic importance. MA 14 designates areas of mineral production.

The five Elk Creek maps show how these management areas were combined under each alternative. Alternative A represents a continuation of present management. Alternative B maximizes resource production. Alternatives C and D maximize resource protection. Alternative E is the preferred resource management plan and attempts to blend the best of the other four alternatives.

Expanding these concepts to the entire Garnet Resource Area produces the Garnet RMP/EIS. Maps showing how each alternative combines the management areas are in the map packet. Management area descriptions are in Appendix A.

HOW THE GARNET RMP/EIS IS ORGANIZED

Abstract and Summary

These sections of the RMP/EIS give a brief description of the entire document. This is a good place to start your review and get an overall view of the RMP/EIS.

Introduction

This section describes the planning process.

Chapter 1. Issues and Criteria

This chapter lists the issues that were developed by discussions with those who would be affected by the RMP. The plan deals primarily with these concerns. Criteria by which the alternatives were evaluated are also listed in this section.

Chapter 2. Alternatives

This chapter gives a detailed description of the proposed management under each of five alternatives. A preferred alternative is selected and the rationale for the selection is listed. This chapter is the heart of the resource management plan. The reader should spend time studying the alternatives, especially the preferred alternative.

Chapter 3. Affected Environment

This chapter describes the Garnet Resource Area and its resources as they presently exist.

Chapter 4. Environmental Consequences

This chapter analyzes the changes that may occur if each alternative were implemented, and attempts to assign the relative significance of each change both beneficial and adverse. This chapter is the heart of the environmental impact analysis. The reader should check the information presented and add anything that was overlooked but may well change the conclusions made.

Chapter 5. Consultation and Coordination

This chapter lists the agencies, organizations, and individuals who were consulted during the development of this document.

Chapter 6. List of Preparers

This chapter lists the individuals who developed this document and their qualifications.

Glossary, References, and Index

These sections are provided to aid the reader in finding and understanding the material contained in this document.

Appendixes

These sections generally contain additional information needed to understand the RMP/EIS. The most important of the appendixes are:

Appendix A. A description of the goals and guidelines for each of the 14 management areas.

Appendix O. The preliminary draft environmental impact statement for the four wilderness study areas—Wales Creek, Hoodoo Mountain, Gallagher Creek, and Quigg West.

Map Packet

The large maps in the map packet depict important aspects of the RMP/EIS. The management areas are mapped for each alternative. The areas designated for retention in public ownership are shown on another map. Grazing allotments, motorized vehicle travel, and land status are shown on other maps.

GARNET RESOURCE AREA
DRAFT RESOURCE MANAGEMENT PLAN
ENVIRONMENTAL IMPACT STATEMENT
DECEMBER 1984

LEAD AGENCY: U. S. Department of the Interior, Bureau of Land Management

TYPE OF ACTION: Administrative

JURISDICTION OF ACTION: Missoula, Granite, and Powell Counties, Montana

ABSTRACT: This document addresses the environmental consequences of five alternative land use plans for the Garnet Resource Area, Butte District, Montana. The main planning issues relate to management of renewable, special attention, and nonrenewable resources; land ownership and administration; and cultural, aesthetic, and recreation resources. The five alternatives address a variety of combinations of decisions relating to these issues. The No Action Alternative is a continuation of present management; the remaining alternatives provide a range of choices from those emphasizing resource protection to those emphasizing resource production. Also, the alternatives make recommendations of no wilderness, all wilderness, and partial wilderness for four wilderness study areas.

FOR FURTHER INFORMATION CONTACT: David R. Baker, Project Manager, Garnet Resource Area Office, 3255 Fort Missoula Road, Missoula, Montana 59801; Telephone (406) 329-3914.

SUMMARY

This draft Garnet Resource Management Plan (RMP) and Environmental Impact Statement (EIS) addresses future management options for approximately 145,660 surface acres and 213,385 acres of federal mineral estate administered by the Bureau of Land Management (BLM) through its Garnet Resource Area office in Missoula, Montana. Although the Garnet Resource Area encompasses nine counties in northwestern Montana, BLM administers substantial surface acreage in only three counties—Missoula, Granite, and Powell.

When completed, the Garnet RMP will provide a comprehensive framework for managing public land and allocating resources in the resource area during the next ten or more years. However, this RMP/EIS document is primarily focused on five broad issues and the decisions needed to address each issue. The broad issues involve the management of renewable resources, such as timber and livestock forage; special attention resources, including wilderness and wildlife habitat; nonrenewable resources, such as energy and minerals; land ownership and administration, including withdrawals and access; and recreation, cultural, and aesthetic resources.

The Garnet RMP/EIS is based on the concept of management areas as developed by the Lolo National Forest Plan (USDA, FS 1982b). First, the capabilities of the land are evaluated in a resource inventory. Then possible management options, appropriate for managing the resources on the land, are developed. (Fourteen different management area prescriptions were developed for the Garnet RMP and are listed in Appendix A.) Next, the capabilities of a given area of land is matched with an array of management options; all of the options are compatible with the multiple use management directives of the BLM but give emphasis to different resources. Finally, the management options for all lands are arranged into five alternative management plans. (The management area assignments for each alternative in the Garnet RMP are shown on the Alternative maps in the map packet.)

Five RMP alternatives are considered in this document. One represents no action, which means a continuation of current management direction. The other four alternatives provide a range of choices from those emphasizing resource protection to those emphasizing resource production.

The preferred alternative, which is the proposed Resource Management Plan, incorporates portions of the other four alternatives and generally represents a balance between resource production and environmental protection. The management actions, resource allocations, and environmental consequences that characterize each alternative are summarized below.

ALTERNATIVE A

Alternative A is a continuation of present management. It is called the no action alternative because no change in management is proposed.

Approximately 87,920 acres (78 percent) of the Commercial Forest Lands (CFL) will be managed essentially as they are at present. Annual harvest will affect 1,216 acres, yielding 6,370 mbf/year. Approximately 9.6 miles of new road construction will be required annually. The only significant acreages of CFL that will not be available for harvest are set aside areas and active mining sites. Approximately 500 acres of CFL will be subject to restrictive timber management to protect and maintain riparian and watershed values; approximately 22,000 acres will be subject to restrictive timber management to protect or enhance important wildlife values; and approximately 24,000 acres will be set aside to protect or enhance wildlife, watershed, soils, and recreation values. Forest management activities will be emphasized on 65,500 acres (57 percent) of CFL, subject to Standard Operating Procedures (SOPs) to maintain site productivity and water quality.

The annual harvest will result in 158 acres (13 percent) clearcut, 766 acres (63 percent) shelterwood cut, 49 acres (4 percent) seed tree cut, 207 acres (17 percent) selection cut, and 36 acres (3 percent) commercially thinned. Although the acreage of stands suitable for treatment will increase, it is assumed under this alternative and all other alternatives that very little appropriated money will be available for thinning and planting the backlog of old, understocked cutting units. Approximately 100 acres of planting and 40 acres of precommercial thinning will be accomplished annually. Planting of problem reforestation sites in a timber sale and timber stand improvement work on occasional overstory removal units will be accomplished under the terms of the timber sale contract.

At present ten Allotment Management Plans (AMPs), comprising 35,663 acres, are under intensive grazing management. Authorized livestock grazing will remain at current levels (5,930 AUMs) in the short term. In the long term, livestock forage production is projected to increase 17 percent over current levels. These increased AUMs will be due primarily to the cumulative effect of intensive grazing management systems already in place and to the continued creation of transitory range as a result of timber harvesting.

The range improvements required to implement this alternative include about 200 acres of weed control, 22 miles of fence, 7 cattleguards, 25 springs, and 2 miles of pipeline. The estimated initial cost for all improvements is $217,400.

Long-term vegetative trend under this alternative is projected to remain static on 74 leases and show a slight improvement on the 10 existing AMPs. Current projections indicate that approximately 6,633 acres in fair and poor vegetative condition in the existing AMPs will be improved up one condition class to good and fair vegetative condition.

Livestock use affects 48 percent of the aquatic habitat in the resource area, and 21 percent of the aquatic habitat is in suboptimum condition. In the long term, it is estimated that this alternative will improve half of the suboptimum habitat through increased bank stability and cover.

None of the four areas currently under wilderness study will be recommended to Congress for wilderness designation or any other formal designation. No public land in the resource area will be proposed for formal designation.

Under this alternative 1,400 acres will be managed primarily for riparian values. All other riparian habitat will be managed under SOPs to protect watershed values. Approximately 9,500 acres of noncommercial forest land containing important wildlife features will be available primarily for wildlife use. Winter range land, with good summer range potential for elk, and areas with concentrations of habitat features totalling 32,000 acres will be managed to protect or enhance wildlife habitat while allowing for the harvest of timber. In addition, 28,460 acres of largely undeveloped lands, set aside in previous land use plans, will be managed primarily for wildlife values. Cumulative adverse impacts to wildlife habitat due to grazing, timber management, and mineral activities are expected to be moderate. The impacts to wildlife will be mitigated on about 51 percent of the land base.

Under Alternative A, oil and gas leasing will be permitted on 205,586 acres of federal mineral estate (100 percent of the total acreage available for consideration). Oil and gas leasing will be subject to seasonal restrictions on 36,874 acres and to stipulations prohibiting surface occupancy on 33,340 acres. The restricted areas and areas prohibiting surface occupancy consist largely of road closure areas, river tracts, cultural and historical sites, and special management areas. The remaining 135,372 acres will be leased subject to standard stipulations.

Exploration and development for locatable minerals in the resource area will not be significantly affected under this alternative. A total of 1,460 acres will remain or be withdrawn from mineral entry. The areas to be withdrawn are to protect recreation, scientific, and historical sites. Approximately 203,850 acres (99 percent) of federal minerals in the resource area will be available for mineral entry and development.

For purposes of analysis, all public land will be retained in public ownership. In actual practice, some public land could be sold or exchanged as a result of tract-specific land use plan amendments, but the net result will be little or no change in the land ownership pattern.

Public access currently is available to 95 tracts totalling 114,600 acres (78 percent public land base). Administrative access is available to an additional 13 tracts totalling 5,320 acres. Under this alternative additional access will be secured only for timber management.

Approximately 30,060 acres will be identified as avoidance areas for utility corridor development. The remaining 115,600 acres (79 percent) will remain available for further consideration. Public land within avoidance areas generally will not be available for corridor development. Criteria provided in the plan will guide future site-specific decisions regarding corridor development.

Recreation opportunities will not be significantly affected by this alternative as developmental activities are directed away from key recreation areas. Forty undeveloped recreation sites, near water or road closure gates, are identified for protection. Other recreation management is generally the same for all alternatives. This includes maintaining existing and potential walk-in hunting areas, cooperatively managing Garnet Ghost Town, establishing the Garnet National Winter Recreation Trail, developing cross-country ski trails, and acquiring access to river tracts. No new outfitters and guides will be licensed for hunting under any alternatives, except in conjunction with adjoining national forest lands. There will be no significant effects on visual quality. Management of cultural or historical sites will be the same for all alternatives, with interpretation of key sites around Garnet and with all others receiving protective management. There will be a beneficial effect on cultural resources in all alternatives.

Under this alternative and all others, most public land will be designated as limited, with all vehicles including Off-road Vehicles (ORV's), restricted to open roads and trails. Exceptions may be made for snowmobile use. Also under all alternatives the need for road colures will be considered on a case-by-case basis. Seasonal closures will be implemented in areas to provide wildlife security, reduce recreation conflicts, reduce road maintenance, provide watershed protection, and enhance recreation, including the opening of private lands for hunting. It is generally the policy that new roads be closed or limited for motorized vehicle use. All existing closures will continue.

Air quality will not be significantly affected. Watershed conditions are expected to remain at the present level. Water quality, which is generally good, should remain at its present level.

This alternative will not have significant social or economic impacts.

ALTERNATIVE B

Alternative B emphasizes resource production.

Forest resources under this alternative will be utilized to the fullest extent possible under the principles of sustained yield management. Approximately 112,000 acres (97 percent) of the CFL will be available for forest management activities. Annual harvest will affect 1,660 acres, yielding 8,560 mbf of timber per year. Approximately 12.9 miles of new road construction will be required annually. The only significant areas of CFL not available for harvest will be active mining sites. No acreage will be set aside or subject to restrictions for other resource values; the 112,000 acres of CFL will be available, without restrictions, for sustained yield management subject to SOPs to maintain site productivity and water quality.

The annual harvest activities will include 216 acres (13 percent) clearcut, 1,050 acres (63 percent) shelterwood cut, 66 acres (4 percent) seed tree cut, 282 acres (17 percent) selection cut, and 50 acres (3 percent) commercially thinned. Intensive management practices will be the same as in Alternative A.

Under this alternative 9,211 AUMs will be allocated to livestock use over the short term. In the long term available AUMs are projected to increase by 2,451. These additional AUMs will be a result of placing 24 allotments (14 more than in Alternative A) under intensive grazing management, improving vegetative conditions, and increasing timber harvest. The greatest increase will be on allotments under intensive grazing management that also have a sizeable number of acres subject to timber harvest.

Range improvements required to implement this alternative include about 500 acres of weed control, 104 miles of fence, 32 cattleguards, 69 springs, and 4 miles of pipeline. The estimated initial cost for all improvements is $829,000.

Vegetative conditions are projected to improve from fair to good on 11,699 acres and from poor to fair on 1,297 acres in the long term. Significant improvement in vegetative condition can be expected on the 14 proposed AMPs. Conditions on the ten existing AMPs will be similar to those discussed in Alternative A.

Livestock use will affect 62 percent of the aquatic habitat in the resource area; 21 percent of the aquatic habitat is in suboptimum condition. Intensive grazing management is projected to improve all of the suboptimum habitat through increased bank stability and cover.

None of the four areas currently under wilderness study will be recommended to Congress for wilderness designation, nor will any areas be recommended for any other formal designation. In the long term wilderness values generally will be forgone in all areas.

Under this alternative there will be no management primarily for riparian values. All riparian habitat will be managed under SOPs to protect watershed values. Approximately 22,000 acres of noncommercial forest land containing important wildlife features will be available primarily for wildlife use, but there will be no management to protect or enhance wildlife habitat. Cumulative adverse impacts to wildlife habitat are expected to be moderate. These impacts will be mitigated on only 22 percent of the land base. However, intensive grazing management will bring substantial improvement to wildlife habitat.

All land available for oil and gas leasing, 205,586 acres, will be leased. There will be no seasonal restrictions on any leases. Stipulations prohibiting surface occupancy will be imposed on 160 acres consisting largely of cultural and historical sites. The remaining 205,426 acres will be leased with standard stipulations.

Exploration and development for locatable minerals in the resource area will not be significantly affected under this alternative. The acres available for mineral entry and the acres to remain or be withdrawn from mineral entry remain the same as in Alternative A.

Under Alternative B, and under all remaining alternatives, the land ownership adjustment issue will be resolved by identification of retention zones in areas where public lands will primarily be retained or enhanced. These retention zones total 126,872 acres. Most are characterized by reasonably consolidated holdings or contain resource values appropriate for public ownership. Public lands outside the retention zones total 18,788 acres. In general, these lands are in small tracts, widely scattered, and often without legal or physical access. They will be considered on their individual merits for retention, exchange, transfer, or sale. All site-specific decisions regarding land ownership adjustments will be made based on criteria identified in the plan.

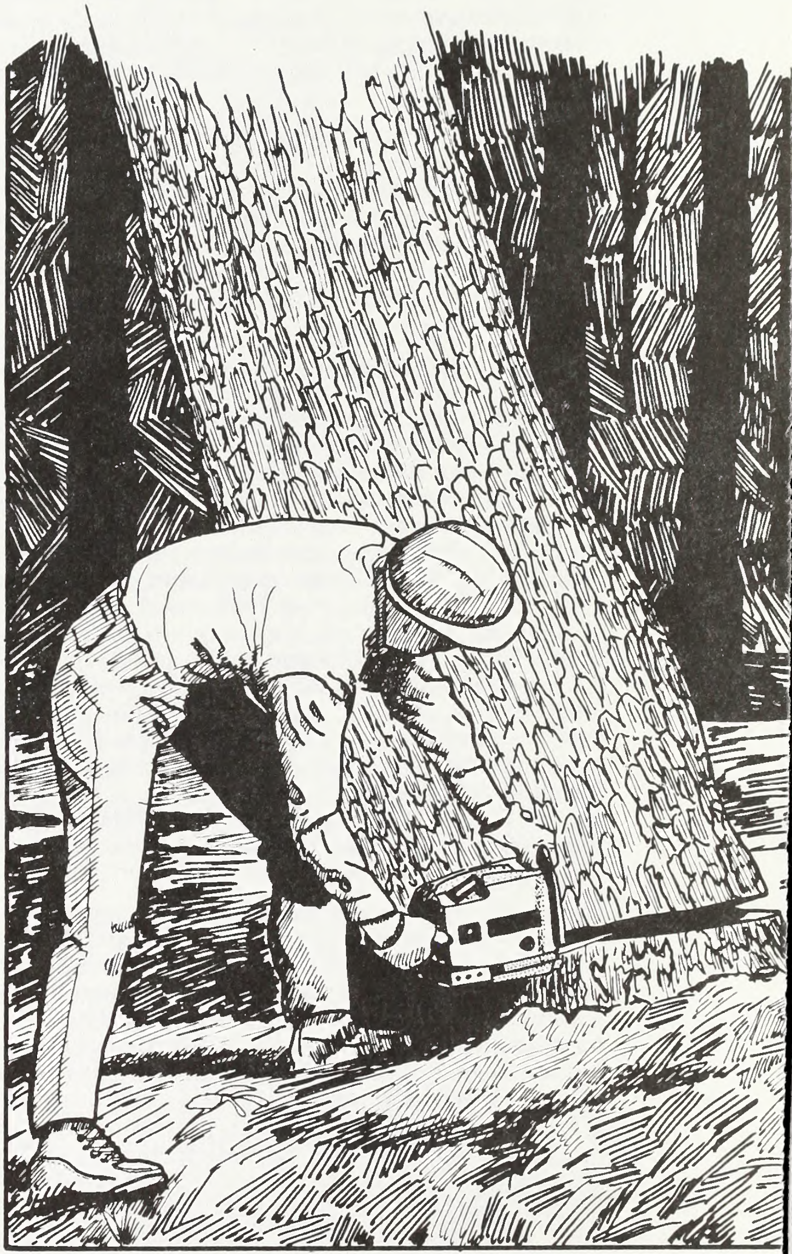
Future investments in public facilities and improvements, including land and access acquisition, generally will receive highest priority in retention areas. In this alternative and the remaining alternatives, public access is proposed to an additional 9,500 acres; administrative access is proposed to an additional 8,150 acres. Alternatives B through E will result in overall improvement in the land ownership pattern and in legal access to public land.

Identified avoidance areas for utility corridor development in this alternative will be reduced to 160 acres, protecting historical and cultural sites. This will leave the remaining 145,500 acres available for further consideration. Criteria provided in the plan will guide any future site-specific decisions on corridor development.

Recreation resources and opportunities will be significantly affected by developmental activities under Alternative B, and no undeveloped recreation sites will be identified for protection. Visual impacts could be significant, particularly in areas of high visual sensitivity. Management of cultural and historical sites is the same as in Alternative A.

Road closure proposals and restrictions on vehicle use remain the same as Alternative A.

Air quality will not be significantly affected, although short term impacts will be slightly greater than in Alternative A. Watershed conditions and water quality are expected to improve slightly because of implementation of 14 new AMPs.



The timber harvest level of this alternative will provide 20 additional jobs compared to Alternative A. Increases in ranch income could be significant for some individuals due to increases in authorized livestock use.

ALTERNATIVE C

Alternative C emphasizes environmental protection.

Under this alternative more acres of CFL will be subject to management restrictions, although the CFL acreage available for management is essentially the same as under current management. There will be an 8 percent reduction in the number of acres harvested annually and a 6 percent reduction in the annual timber harvest. There will also be a 6 percent reduction in the acreage required for roads. Approximately 2,780 acres of CFL will be set aside or subject to restrictive timber management to protect and maintain riparian and watershed values; approximately 46,700 acres will be subject to restrictive timber management to protect or enhance important wildlife values; and approximately 2,000 acres within special management areas will be set aside to protect or enhance wildlife, watershed, soils, and recreation. The remaining 38,500 acres (33 percent) of CFL will be available for a full range of forest management activities subject to SOPs to maintain site productivity and water quality.

The annual harvest activities on 1,120 acres will include 145 acres (13 percent) clearcut, 706 acres (63 percent) shelterwood cut, 45 acres (4 percent) seed tree cut, 190 acres (17 percent) selection cut, and 34 acres (3 percent) commercially thinned. Intensive timber management practices will be the same as Alternative A.

With 56 percent of the available CFL acreage subject to volume reduction and 22 percent of the CFL unavailable for harvest, the annual harvest will be 5,960 mbf, a significant reduction from the possible harvest level of 8,560 mbf.

Under this alternative 3,595 AUMs, or 65 percent of the current licensed use, will be allocated to livestock grazing in the short term. An increase of 637 AUMs is projected in the long term. These reductions are the result of management goals to protect riparian habitat. Topography in the resource area causes livestock to travel and concentrate in or near the valley bottoms and associated riparian areas. Because of this heavy use, 95 percent of the poor and fair condition range is found in the valley bottoms. This alternative strives to improve riparian habitat conditions primarily by reducing stocking levels.

Range improvements required to implement this alternative include about 82 miles of fence and 22 cattleguards. The estimated initial cost for improvements is $465,000.

Vegetative conditions are expected to improve significantly on the 28 allotments proposed for intensive management and to remain in or near the same condition on the remaining 56 allotments.

Livestock use affects 48 percent of the aquatic habitat in the resource area; 21 percent of the aquatic habitat is in suboptimum condition. Intensive grazing management is projected to improve all of the suboptimum habitat through increased bank stability and cover.

All four of the areas currently under wilderness study will be recommended to Congress for wilderness designation. As a result wilderness values generally will be maintained on 27,737 acres in the resource area. These areas will be closed to motorized vehicle use.

A unique geologic feature in the resource area (20 acres) will be recommended as an Area of Critical Environmental Concern (ACEC).

Under this alternative 4,300 acres will be managed primarily for riparian values. All other riparian habitat will be managed under SOPs to protect watershed values. Approximately 5,300 acres of noncommercial forest land containing important wildlife features will be available primarily for wildlife use. Winter range, land with good summer range potential for elk, and areas with concentrations of habitat features totalling 61,200 acres will be managed to protect or enhance wildlife habitat while allowing for the harvest of timber. Cumulative adverse impacts to wildlife habitat are expected to be low. The impacts to wildlife will be mitigated on about 70 percent of the land base.

Oil and gas leasing will be permitted on 177,849 acres of federal mineral estate (86.5 percent). Oil and gas leasing will be subject to seasonal restrictions on 66,050 acres and to stipulations prohibiting surface occupancy on 2,560 acres. These restricted areas consist largely of road closure areas, river tracts, cultural and historical sites, and the periphery of special management areas. Approximately 27,737 acres will not be leased mainly to meet a Congressional mandate not to lease in WSAs or wilderness (subject to change by Congressional discretion). The remaining 109,239 acres will be leased subject to standard stipulations.

Exploration and development for locatable minerals will be affected by the recommendation of 27,737 acres for wilderness designation. This will increase the total acreage withdrawn from mineral entry to 29,217 acres, 14 percent of the available acres.

Resolution of the land ownership adjustment issue and access proposals will be the same as in Alternative B.

The 27,757 acres recommended for wilderness and for ACEC under this alternative will be excluded from corridor development. Another 12,253 acres will be identified as avoidance areas; public land within avoidance areas generally will not be available for corridor development. The remaining 105,650 acres (76 percent) will be available for further consideration. Criteria provided in the plan will guide future site-specific decisions regarding corridor development.

Most recreational activities will benefit, particularly unroaded backcountry and dispersed recreation activities. Sixty-one undeveloped recreation sites are identified for protection. Visual quality will be retained. Management of cultural and historical sites is the same as in all other alternatives.

Road closure proposals and restrictions on vehicle use will be the same as in all other alternatives, except that areas recommended for wilderness designation will be closed.

Air quality will not be significantly affected. Watershed conditions are expected to improve significantly. Water quality should improve moderately.

This alternative will reduce direct employment in timber harvest by approximately four jobs per year. Some gains could occur in jobs and income related to nonmotorized recreation and wildlife related recreation.

ALTERNATIVE D

Alternative D, like Alternative C, emphasizes environmental protection. However, Alternative D differs from Alternative C in that only portions of Wales Creek WSA, Hoodoo Mountain WSA, and Gallagher Creek 202 WSA, and all of Quigg West 202 WSA will be recommended for wilderness designation.

Alternative D will allocate 101,130 acres of CFL (90 percent) for forest management. Annual harvest activities will affect 1,313 acres, yielding 6,780 mbf/year. Approximately 10.2 miles of new road construction will be required annually. The only significant areas which will not be available for harvest are those included in the partial wilderness recommendation and active mining sites. Approximately 3,580 acres of CFL will be set aside or allocated to restrictive timber management to protect and maintain riparian and watershed values; 58,350 acres will be subject to restrictive timber management to protect or enhance important wildlife values; and 400 acres will be set aside to protect or enhance wildlife, watershed, soils, and recreation values. Forest management will be emphasized on the remaining 39,250 acres (34 percent) of CFL, subject to SOPs to maintain site productivity and water quality. Although the percentage of CFL acres allocated for forest management is high, 54 percent are subject to management restrictions in this alternative. Overall, the degree of impacts will be similar to current management.

The annual harvest activities will include 171 acres (13 percent) clearcut, 827 acres (63 percent) shelterwood cut, 53 acres (4 percent) seed tree cut, 223 acres (17 percent) selection cut, and 39 acres (3 percent) commercially thinned. Intensive management activities will be the same as Alternative A.

Range resources will be treated the same as in Alternative C and will have essentially the same impacts and results.

Portions of WSAs, totalling 14,350 acres, will be recommended for wilderness designation. Of the remaining acres, 440 will become a special management area and 12,600 acres will be allocated to other management areas with primary emphasis on wildlife habitat.

A unique geologic feature (20 acres) will be recommended as an ACEC.

Under this alternative, 5,311 acres will be managed emphasizing riparian values. All other riparian habitat will be managed under SOPs to protect watershed values. Approximately 5,300 acres of noncommercial forest land containing important wildlife features will be available primarily for wildlife use. Winter range, land with good summer range potential for elk, and areas of concentrations of habitat features totalling 75,000 acres will be managed to protect or enhance wildlife habitat while allowing for the harvest of timber. In addition, 440 acres of largely undeveloped lands, set aside in previous land use plans, will be managed primarily for wildlife values. Cumulative habitat impacts will be the same as in Alternative C.

Oil and gas leasing will be permitted on 191,236 acres of federal mineral estate (93 percent). Oil and gas leasing will be subject to seasonal restrictions on 78,550 acres and to stipulations prohibiting surface occupancy on 600 acres. These areas consist largely of important big game habitat. The 14,350 acres not leased are within areas recommended for wilderness designation. The remaining 112,086 acres will be leased subject to standard stipulations.

Exploration and development for locatable minerals will be permitted on 189,480 acres (92 percent). This is 7 percent less than under current management. The 15,830 acres withdrawn from mineral entry include the powersite withdrawals and the areas to be withdrawn to protect recreation, scientific, and historical sites, plus the recommendation of 14,350 acres for wilderness designation.

Resolution of the land ownership adjustment issue and access proposals remains the same as in Alternative B.

The reduced wilderness recommendation and the ACEC recommendation will result in the exclusion of 14,370 acres from corridor development. Another 11,640 acres will be identified as avoidance areas; public land within avoidance areas generally will not be available for corridor development. The remaining 119,650 acres (82 percent) will be available for further consideration. Criteria provided in the plan will guide future site-specific decisions.

Recreational activities will benefit as in Alternative C, except that 13,387 acres of WSA lands could be subject to development activities. The number of undeveloped recreation sites identified for protection will be the same as in Alternative C. Reduction of acres recommended for wilderness will result in fewer areas allocated to VRM Class I. Management of cultural and historical sites is the same as in all other alternatives.

Road closure proposals and restrictions on vehicle use will be the same as in all other alternatives, except that areas recommended for wilderness designation will be closed.

Air quality will not be significantly affected. Watershed conditions are expected to improve significantly. Water quality should improve moderately.

This alternative will increase direct forest employment by four jobs over the current situation. Changes in ranch income will not be significant. Some increases in jobs and income related to nonmotorized and wildlife related recreation could occur.

ALTERNATIVE E

Alternative E is the preferred alternative.

The acreage of CFL available for timber management will fall between Alternatives A and B. Approximately 105,020 acres (93 percent) of CFL will be available for forest management activities. Annual harvest will affect 1,352 acres, yielding 7,030 mbf/year. Approximately 10.5 miles of new road construction will be required annually. The only significant areas of CFL not available for harvest will be special management areas; however, management restrictions will apply to 62 percent of the available CFL. Approximately 2,080 acres of CFL will be set aside or subject to restrictive timber management to protect and maintain riparian and watershed values; approximately 62,700 acres will be subject to restrictive management to protect or enhance important wildlife values; and approximately 6,620 acres will be set aside to protect or enhance wildlife, watershed, soils, and recreation values. The remaining 40,300 acres (38 percent) of CFL will emphasize forest management activities, subject to SOPs to maintain site productivity and water quality.

The annual harvest activities will include approximately 176 acres (13 percent) clearcut, 852 acres (63 percent) shelterwood cut, 54 acres (4 percent) seed tree cut, 230 acres (17 percent) selection cut, and 41 acres (3 percent) commercially thinned. Intensive management practices will be the same as Alternative A.

In this alternative 6,245 AUMs will be allocated to livestock use in the short term, a 5 percent increase over current licensed use. In the long term, available AUMs are projected to increase to 8,013. These additional AUMs are a combined estimate of additional forage from range improvements, increased timber harvest, and improvement of vegetative conditions on 20 allotments under intensive grazing management.

Range improvements required to implement this alternative include about 300 acres of weed control, 75 miles of fence, 25 cattleguards, 38 springs, and 4 miles of pipeline. The estimated initial cost for improvements is $585,600.

Livestock carrying capacity of the range resource is projected to increase 28 percent in the long term. It is expected that 90 percent of the range available for livestock grazing (excluding logged areas) will be in good or excellent condition over the long term.

Livestock use affects 48 percent of the aquatic habitat in the resource area; 21 percent of the aquatic habitat is in suboptimum condition. Intensive grazing management is projected to improve all of the suboptimum habitat through increased bank stability and cover.

Quigg West, a 520-acre 202 WSA which adjoins a Forest Service RARE II area, will be recommended for wilderness designation in this alternative contingent upon the designation of the Quigg RARE II area (FS 1807) for wilderness. Special management will be emphasized on 8,120 acres largely comprised of portions of the WSAs.

A unique geologic feature (20 acres) will be recommended as an ACEC.

Under this alternative 3,500 acres will be managed emphasizing riparian values. All other riparian habitat will be managed under SOPs to protect watershed values. Approximately 5,800 acres of noncommercial forest land containing important wildlife features will be available primarily for wildlife use. Winter range, land with good summer range potential for elk, and areas of concentrations of habitat features totalling 80,450 acres will be managed to protect or enhance wildlife habitat while allowing for the harvest of timber. In addition 8,140 acres of largely undeveloped lands, set aside in previous land use plans, will be managed primarily for wildlife values. Cumulative adverse impacts to wildlife habitat are expected to be low to moderate. The impacts to wildlife will be mitigated on about 69 percent of the land base.

Oil and gas leasing will be permitted on 205,066 acres (99 percent) of federal mineral estate. Leasing will be subject to seasonal restrictions on 84,076 acres and to stipulations prohibiting surface occupancy on 8,180 acres. These restricted areas consist largely of road closures, important big game habitat, and special management areas. Approximately 520 acres, recommended for wilderness designation, will not be leased. The remaining 112,810 acres will be leased subject to standard stipulations.

Exploration and development for locatable minerals will be permitted on 203,310 acres (99 percent) in the resource area, similar to current management but with slightly more acreage withdrawn from mineral entry. In addition to the 1,460 acres withdrawn to protect recreation, scientific, and historical sites under current management; withdrawal will also be proposed for the 520 acres recommended for wilderness designation and for the 20 acres recommended as an ACEC. A total of 2,000 acres will be withdrawn from mineral entry.

The land ownership adjustment issue will be resolved by identification of retention zones in areas where public lands will primarily be retained or enhanced. These retention zones total 126,872 acres. Most are characterized by reasonably consolidated holdings or contain resource values appropriate for public ownership. Public lands outside the retention zones total 18,788 acres. In general, these lands are in small tracts, widely scattered, and often without legal or physical access. They will be considered on their individual merits for retention, exchange, transfer, or sale. All site-specific decisions regarding land ownership adjustment will be made based on criteria identified in the plan.

Future investments in public facilities and improvements, including land and access acquisition, generally will receive highest priority in retention areas. Public access is proposed to an additional 9,500 acres; administrative access is proposed to an additional 8,150 acres. This alternative will result in overall improvement in the land ownership pattern and in legal access to public land.

Alternative E will exclude 540 acres, the wilderness recommendation and the ACEC recommendation, from corridor development. Another 17,620 acres will be identified as avoidance areas; public land with avoidance areas generally will not be available for corridor development. The remaining 127,500 acres (87.5 percent) will be available for further consideration. Criteria provided in the plan will guide future site-specific decisions.

Recreation opportunities will not be significantly affected by this alternative as developmental activities are directed away from key recreation areas. A total of 41 undeveloped recreation sites, near water or road closure gates, are identified for protection; this is one more than under current management. Other recreation management includes maintaining existing and potential walk-in hunting areas, cooperatively managing Garnet Ghost Town, establishing the Garnet National Winter Recreation Trail, developing cross-country ski trails, and acquiring access to river tracts. No new outfitters and guides will be licensed except in conjunction with adjoining national forest lands. There will be no significant effects on visual quality. Management of cultural or historical sites will include interpreting key sites around Garnet and all others receiving protective management. There will be a beneficial effect on cultural resources.

Most public land will be designated as limited, with all vehicles, including ORVs, restricted to open roads and trails. Exceptions may be made for snowmobiles. The 520-acre Quigg West and the 20-acre ACEC will be closed. Karshaw Mountain 240 acres and Ram Mountain 4800 acres are also closed. The need for additional road closures will be considered on a case-by-case basis. Seasonal closures will be implemented in areas to provide wildelife security, reduce recreation conflicts, reduce road maintenance, provide watershed protection, and enhance recreation, including the opening of private lands for hunting. It is generally the policy that new roads be closed or limited for motorized vehicle use. All existing closures will continue.

Air quality will not be significantly affected. Watershed conditions are expected to improve significantly. Water quality should improve moderately.

This alternative will lead to an increase of five direct jobs in timber harvest and processing. Small increases in average ranch income will also occur under this alternative.

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INTRODUCTION

PURPOSE AND NEED

The Garnet Resource Management Plan (RMP) will provide a comprehensive framework for managing the public lands and allocating resources in the Garnet Resource Area (GRA) for the next ten or more years. This document includes both a proposed RMP (Alternative E) and a draft Environmental Impact Statement (EIS) addressing the future management of 145,660 surface acres and 213,385 subsurface acres of mineral estate. These lands are administered by the Bureau of Land Management (BLM) through its Butte District Office and Garnet Resource Area in Montana (see the Garnet Resource Area Location map).

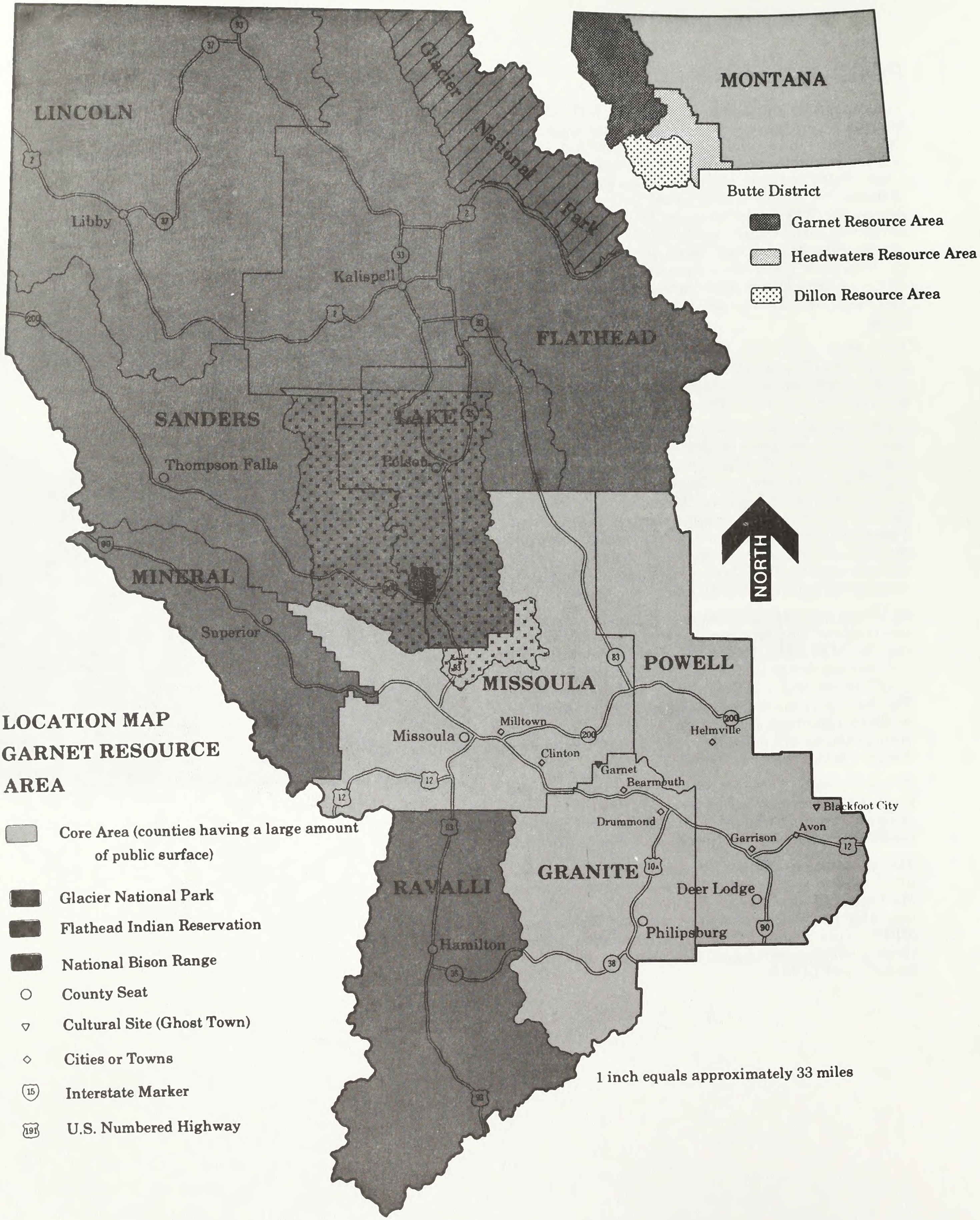
This plan addresses the resolution of five issue groups (see Chapter 1). In addition, several statutory or court ordered requirements will be met upon final approval of the RMP/EIS.

As required by Section 603 of the Federal Land Policy and Management Act (FLPMA), this document analyzes the suitability of two wilderness study areas in the GRA and makes a preliminary recommendation for inclusion in the National Wilderness Preservation System or for a return to multiple use management. These recommendations will be reported to Congress through the Director of the BLM, Secretary of the Interior, and the President. The final decision on wilderness designation will be made by Congress.

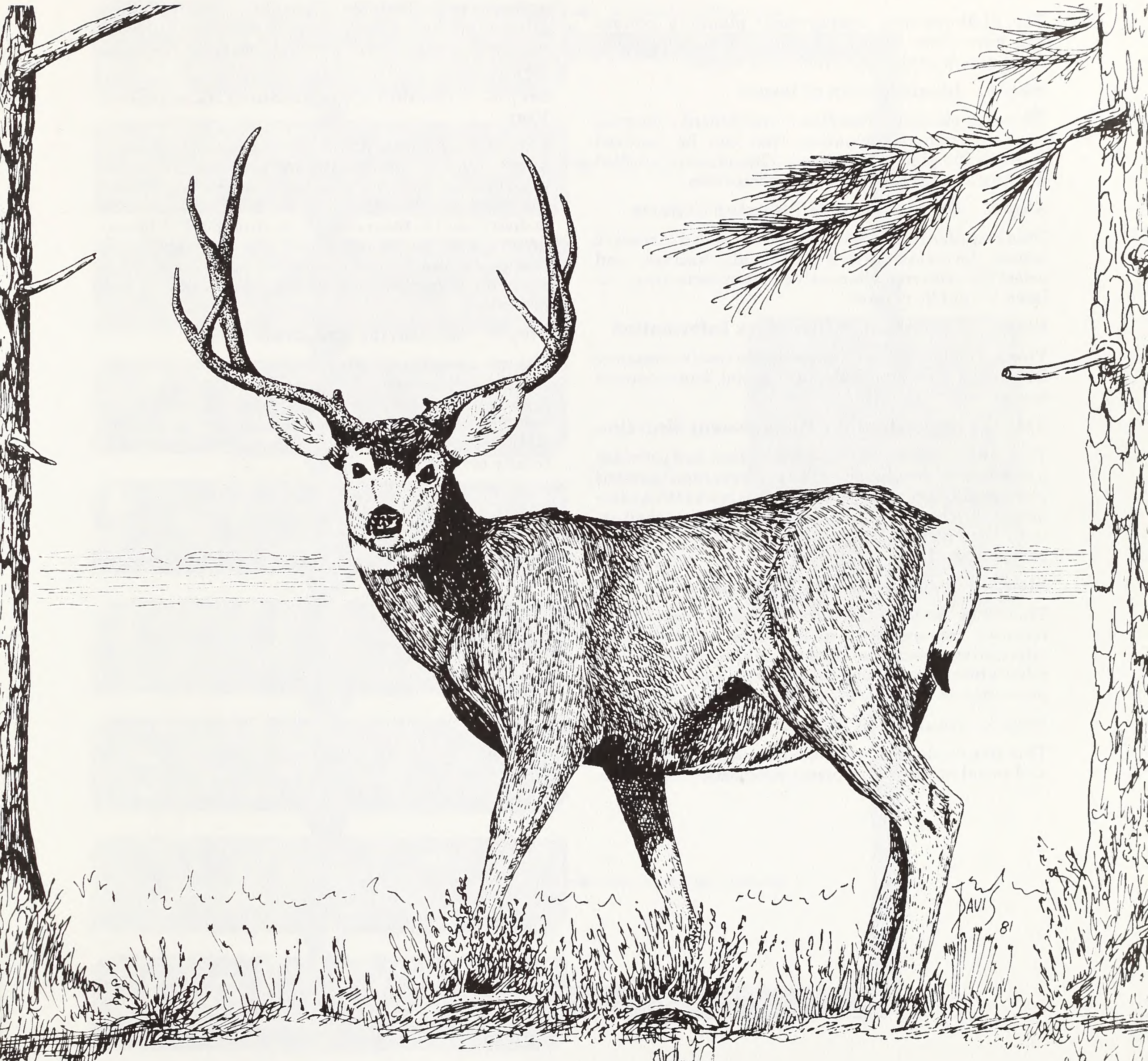
BLM was granted permission to study an additional two tracts of land for potential wilderness under Section 202 of FLPMA. Recommendation for wilderness will be reported to Congress through the Director of the BLM, Secretary of the Interior, and the President. The final decision on wilderness designation will be made by Congress. Recommendations to drop either of these tracts will be made by the State Director as a decision resulting from the RMP analysis.

The document also analyzes several alternatives for livestock grazing on public land. This fulfills a court ordered agreement based on a 1973 lawsuit against the BLM by the Natural Resources Defense Council.

This planning document incorporates land use planning guidance previously found in five separate Management Framework Plans (MFP): the Blackfoot, Hoodoo, Salmon Lake, Avon, and Philipsburg MFPs. This document also develops and revises resource management guidance as prescribed in Section 202 of FLPMA.



LOCATION MAP GARNET RESOURCE AREA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PLANNING PROCESS OVERVIEW

The BLM resource management planning process has nine steps. Figure I-1 lists and highlights the steps where public participation is needed.

Step 1. Identification of Issues

This step identifies resource management concerns, conflicts, and opportunities that can be resolved through the planning process. This process is called scoping and involves public participation.

Step 2. Development of Planning Criteria

This step identifies the information needed to resolve issues, formulate and evaluate alternatives, and select the preferred alternative. The criteria are circulated for public review.

Step 3. Collection of Inventory Information

This step collects the data needed to resolve resource issues and other environmental, social, and economic concerns.

Step 4. Analysis of the Management Situation

This step assesses the current situation and provides a baseline for development of a resource management plan. A Management Situation Analysis (MSA) document is produced that describes the physical situation, current management guidance, and resource problems and opportunities.

Step 5. Formulation of Alternatives

This step prepares several complete, reasonable resource management alternatives. A no action alternative describes present management while other alternatives place emphasis on environmental protection or resource production.

Step 6. Analysis of Impacts of Alternatives

This step analyzes the physical, biological, economic, and social impacts of implementing each alternative.

Step 7. Selection of the Preferred Alternative

This step compares the impacts of each alternative and selects the preferred alternative. The interdisciplinary process used in Steps 5 through 7 is documented in a draft RMP/EIS and circulated for public review.

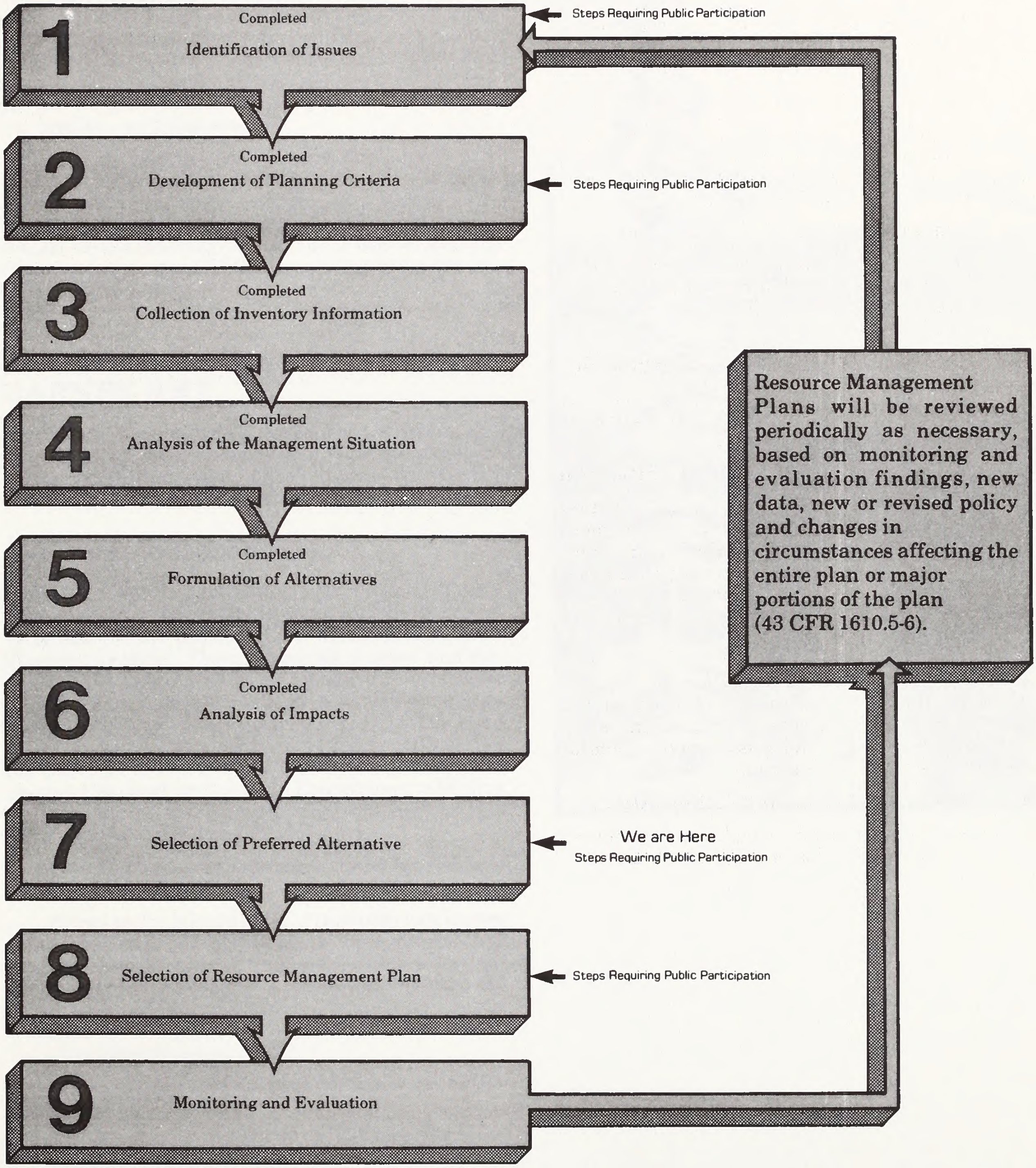
Step 8. Selection of the Resource Management Plan

This step analyzes public comments, modifies the alternatives as appropriate, and serves as a basis for the District Manager to select a proposed resource management plan. The proposed RMP and final EIS is distributed to the public in the final RMP/EIS document. A 30-day protest period is allowed before the resource management plan is adopted. A Record of Decision is published after a consideration of any protests.

Step 9. Monitoring and Evaluation

This step monitors and evaluates the resource condition as the plan is implemented. If monitoring shows that resource issues are not being satisfactorily resolved or that the desired results outlined by the RMP are not being met, the plan may be amended or totally revised.

Steps in the Resource Management Planning Process


1
Completed
Identification of Issues
Steps Requiring Public Participation
2
Completed
Development of Planning Criteria
Steps Requiring Public Participation
3
Completed
Collection of Inventory Information
4
Completed
Analysis of the Management Situation
5
Completed
Formulation of Alternatives
6
Completed
Analysis of Impacts
7
Selection of Preferred Alternative
We are Here
Steps Requiring Public Participation
8
Selection of Resource Management Plan
Steps Requiring Public Participation
9
Monitoring and Evaluation

Resource Management Plans will be reviewed periodically as necessary, based on monitoring and evaluation findings, new data, new or revised policy and changes in circumstances affecting the entire plan or major portions of the plan (43 CFR 1610.5-6).

CHAPTER 1
ISSUES AND CRITERIA

ISSUE-DRIVEN PLANNING

The BLM planning regulations equate land use planning with problem solving or issue resolution. An issue is an opportunity, conflict, or problem regarding the use or management of public lands and resources. Not all issues can be resolved through land use planning but may instead require changes in policy, budgets, or legislation.

Issue-driven planning addresses conflicting resource uses, new management opportunities, or other problems of major concern to land managers and the public. Alternatives are formulated and evaluated to determine the best way to resolve the issues. Aspects of current management that are not at issue are not evaluated in detail.

ISSUES ADDRESSED IN THE GARNET RMP

Five issues are addressed in the Garnet RMP. The process of determining issues involved the interdisciplinary planning team, public input, interagency consultation, and BLM management review.

Renewable Resources

Most of the public land in the Garnet Resource Area (78 percent) is commercial forest land. The forage on 79 percent of the public land is leased for domestic livestock grazing. These resources (timber and forage) can be managed on a sustained yield basis while allowing for multiple resource use. However, the amount and type of use allocated to each resource is a major concern of the public. This has contributed to the passage of the Federal Land Policy and Management Act and the National Environmental Policy Act, and the need for planning efforts such as this RMP. Needed decisions include:

> How much of the commercial forest land should be harvested?
>
> Where and to what degree of intensity can timber management be applied to provide a desired level of production? Is there any public land where fire should not be used as a method to manage the timber and forage resources? Is there any public land where pesticides (herbicides and insecticides) should not be used?
>
> Where should livestock grazing not be authorized?
>
> Which allotments can be prioritized for more intensive grazing management?
>
> What options should be considered for grazing and timber management to meet the needs of wildlife habitat, livestock, watershed, and forest products?

Special Attention Resources

There are resource values on public land in the Garnet Resource Area that are not specifically renewable or commodity oriented, such as wilderness values or riparian habitat. These require careful and professional management as directed by public and professional opinion and federal law. These values often compete among themselves and with other resource uses. The management and allocation of these resources are a major concern of the public. Needed decisions are:

> Which wilderness study areas (Wales Creek, Hoodoo Mountain, Gallagher Creek, or Quigg West) or portions thereof, if any, are suitable for designation as wilderness?
>
> How should the WSAs be managed if they are not recommended for wilderness?
>
> Are there any Areas of Critical Environmental Concern (ACEC) on public land that require special management?
>
> Are there good management reasons for closing additional roads either seasonally or permanently? Where?
>
> What emphasis should be placed on the management of riparian habitat and other special habitats?
>
> Is there public land where the management of wildlife habitat should be the primary objective?

Nonrenewable Resources

The Garnet Resource Area also has a role in managing the public land in a manner that recognizes the national and local need for mineral resources. Most of the public land has been leased for oil and gas, and there are occasional requests for saleable minerals (sand, gravel, and rock). Also, portions of the resource area have been continuously explored or mined for locatable minerals, such as gold, silver, barite, tungsten, and copper. Exploration and development can conflict with other resource uses in certain areas. The public, federal law, and BLM (as stewards of all resources) recognize that other resource concerns should be considered along with the need for the minerals. Needed decisions are:

> Which public land, if any, should not be leased for oil and gas to protect other resource values?
>
> Which public land should have special stipulations applied to oil and gas leases?
>
> Is there public land that should be withdrawn or remain withdrawn from mineral entry to protect other resource values?

Land Ownership and Administration

The public; through past planning efforts, general response, and legislation; has indicated that public land should be kept in public ownership unless analysis shows transfer or disposal would result in better management of resource values. The public land in portions of the Garnet Resource Area is intermingled with private lands. The administration of this intermingled public land is often more difficult and costly because property lines are more expensive to establish, transportation and energy costs are higher, management activities must consider actions on adjacent private land, etc. This ownership pattern has also resulted in tracts of public land with no access. The type of needed access is yet to be determined. Also, there are several major utility (transmission line and pipeline) corridors presently crossing public land and additional lines are likely. The RMP will assess the impacts associated with such corridors and identify areas that should not be crossed. Furthermore, the BLM is directed to review existing and proposed withdrawals (primarily from mineral entry and sale) to determine their impact and continued desirability. The needed decisions are:

> Which land should be retained in public ownership?
>
> Which public land should be excluded from future routing of major utility rights-of-way? Which public land should be avoided if possible, and which public land should remain available for future corridor development?
>
> Where and what type of access is needed to get to public land?
>
> Is there public land that should remain withdrawn from sale, location, and entry under the public land laws to protect certain resources?

Recreation, Cultural, and Aesthetic Resources

The public land in the Garnet Resource Area provides numerous outdoor recreation opportunities, aesthetic quality, archaeological values, motorized vehicle use opportunities, and historic values. The need to manage these values is founded in public opinion and legal mandates. Management can take any number of differing avenues and in doing so can create conflicts of varying degrees between resource uses. The needed decisions are:

> How should motorized vehicle use be managed?
>
> How many areas, if any, should be provided for roadless, nonwilderness recreation; and where should they be located?
>
> What areas should be identified primarily for the protection of developed and undeveloped recreation sites?

What recreational opportunities should be provided? Where?

Is there any public land that should be managed primarily for its scenic values? How should this land be managed for other resources?

To what degree should BLM be involved with management of Garnet Ghost Town?

What management emphasis should be placed on cultural or historic sites?

PLANNING CRITERIA

Planning criteria set out the legal parameters and management goals that guide and direct the development of the RMP. These criteria were developed and revised with public participation to assure that the planning process stayed focused on the issues. The criteria were used at four stages of the planning process: resource inventory, management situation analysis, formulation of alternatives, and selection of the preferred alternative.

Renewable Resources

Forestry

The RMP should follow the guidance outlined in the *State Director Guidance* (USDI, BLM 1983b) for forest management and the *Montana Cooperative Elk Logging Study* (USDA, FS 1982a) recommendations, where applicable. The plan should consider:

the availability of land for inclusion into the Sustained Yield Unit (SYU) base dependent upon the Timber Production Capability Classification (TPCC);

the access requirements;

the demand for forest products other than sawtimber;

the impacts of timber harvesting (including firewood) on wildlife habitat, watershed, soils, range management, wilderness, recreation, and scenic values;

the impacts of timber management decisions on social and economic conditions;

adjacent land ownership and public attitudes toward timber management and the use of fire and pesticides; and

the impacts of meeting wildlife habitat, watershed, livestock, and recreation objectives on timber management.

Livestock Grazing

The RMP should follow the guidance outlined in the *State Director Guidance* (USDI, BLM 1983b) for grazing management. Initial grazing levels were established by a 1965 occular range survey supplemented in part by the use of the *Soil Conservation Service National Range Handbook* (USDA, SCS 1976). Range potential will be determined by comparison with similar ungrazed sites in addition to intensive monitoring techniques. This will determine the proper stocking rates. Rangeland improvements and grazing allotments will be prioritized; those showing the greatest opportunity for positive economic return and/or meeting resource management objectives will receive the highest priorities. The plan should consider:

suitability for grazing considering distance from water, sparsity and type of vegetation, steepness of slope, and manageability (cost and control);

the impacts of livestock grazing and Allotment Management Plans (AMPs) on wildlife habitat, riparian areas, watershed, and forest regeneration; and

the impacts of meeting wildlife habitat, watershed, recreation, and forest product needs on grazing management.

Special Attention Resources

Wilderness and Special Designations

The RMP should follow the guidance outlined in the *State Director Guidance* (USDI, BLM 1983b) for Areas of Critical Environmental Concern and the BLM wilderness study guidelines (USDI, BLM 1978, 1981b, 1983a) for wilderness study areas. The plan should consider:

the impacts of nondesignation on wilderness or special values;

the manageability of the area;

the potential and availability of public lands for energy and mineral development;

the availability of public lands for development and use of timber, grazing, and recreation resources;

the impacts of wilderness designation on social and economic conditions;

public attitudes and the availability of wilderness;

consistency with Forest Service plans; and

the availability of other means to protect and manage the resources.

Road Management

The plan should consider:

the availability and demand by the public for road use;

the cost and manageability of closing roads;

the impacts of not closing roads on maintenance costs, wildlife habitat, watershed, recreationists, vegetation (grass and trees); and

compatibility with adjoining land uses.

Wildlife and Riparian Habitat

The RMP should follow the guidance outlined in the *State Director Guidance* (USDI, BLM 1983b) for wildlife and the *Montana Cooperative Elk Logging Study* (USDA, FS 1982a) recommendations, where applicable. The plan should consider:

the impacts of livestock grazing, timber management, and other uses on riparian, special habitat, and important wildlife habitat conditions;

the impacts of riparian, special habitat, and important wildlife habitat management decisions on livestock operations, timber management, mineral exploration, and recreation pursuits;

the cost and public attitude toward the availability of areas for management; and

the compatibility with adjacent landowners.

Nonrenewable Resources

Oil and Gas Leasing

The RMP should follow the guidance outlined in the *State Director Guidance* (USDI, BLM 1983b) for major program thrusts, the *Butte District Oil and Gas Programmatic Environmental Analysis* (USDI, BLM 1981a), and the existing map of the resource area showing areas where special stipulations are needed. In general, mitigation of adverse impacts can be accomplished via standard stipulations and special stipulations, where warranted. The no lease recommendation should be used infrequently and thoroughly justified. The plan should consider:

the current availability of public land for oil and gas leasing, realizing that most of the public lands in the resource area are already leased;

the impacts of oil and gas activities on social and economic values;

the probability of oil and gas resources being found and the probability of leased land being explored;

the impacts of oil and gas activities on adjoining land uses; big game and aquatic habitat; wilderness study areas; scenery, historic and archaeological resources; fragile soil types; surface and ground water; and the rehabilitation requirements of such impacts; and

the impacts of protective stipulations on the lessee's access and use of the lease area.

Mineral Withdrawals

The RMP should follow the guidelines outlined in the *State Director Guidance* (USDI, BLM 1983b) for minerals and energy. The probability of occurrence and availability of minerals must be given equal consideration with other resource values when considering withdrawals. The plan should consider:

management efficiency and effectiveness,

public use of public resources,

social and economic conditions, and

the availability of other actions to protect nonmineral resource values.

Land Ownership and Administration

Land Ownership Adjustment

The RMP should follow the guidance outlined in the *Land Pattern Review and Land Adjustment Supplement to the State Director Guidance* (USDI, BLM 1984). Exchange will generally be the preferred means of land adjustment. The plan should consider:

the surrounding ownership, adjacent land uses, the need for public access, and the public attitude; and

the costs that have already been expended towards management (easements, line running, forest management, etc.) weighed against future management costs.

Withdrawals from the General Land Laws

The plan should consider:

management efficiency and effectiveness,

public use of public resources,

social and economic conditions, and

the use of other means to accomplish the needed protection.

Utility Corridors

The RMP should identify possible exclusion areas, avoidance areas, and windows for utility corridors based on the *State Director Guidance* (USDI, BLM 1983b) for corridor planning. The location of future utility lines adjacent to existing utilities, where compatible, is generally preferred over undeveloped areas. The plan should consider:

compatibility with other utility rights-of-way and adjoining land uses;

availability of public lands for corridor development and the existence of corridors or utility rights-of-way;

social and economic impacts;

impacts on important big game and threatened and endangered species habitat;

impacts on visual, recreation, archaeological, and historical resources;

impacts on wilderness values and environmentally sensitive areas; and

impacts on active mining areas (placer).

Access

The RMP should follow the guidance outlined in the *State Director Guidance* (USDI, BLM 1983b) for access to public lands. In general, larger tracts of public land with high multiple use values will receive higher priority over smaller isolated tracts, unless a critical resource need is identified and documented or the tract has high public values as expressed by public nomination. All access needs shall be prioritized by each resource activity. The plan should consider:

> impacts of the type of physical access (vehicular vs nonvehicular) on big game habitat, wilderness values, ACEC, recreation values, and geologically sensitive areas that require a high degree of management to prevent loss of resource value or to prevent degradation;
>
> the size of the tract, resource values, costs, compatibility with adjoining land uses, and the need for public access; and
>
> availability of existing access to the public lands.

Cultural, Aesthetic, and Recreation Resources

Motorized Vehicle Use

Planning for motorized vehicle use should follow the guidance outlined in Executive Orders 11644 and 11989 and the *State Director Guidance* (USDI, BLM 1983b) for off-road vehicle designations. The plan should consider:

> the availability of public land for existing motorized use (including FS where applicable);
>
> the impacts of motorized use on wildlife habitat, watershed, nonmotorized recreation uses, forestry, livestock management, and range improvements;
>
> the compatibility with adjoining land uses;
>
> the manageability and costs;
>
> the public attitude;
>
> the amount of existing motorized use; and
>
> motorized use necessary for program management and maintenance.

Recreational Facilities

The RMP should follow the guidance outlined in the *State Director Guidance* (USDI, BLM 1983b) for recreation. The plan should consider:

> the costs and demands of providing facilities and opportunities;
>
> the compatibility with adjacent land uses; and
>
> the impacts of recreation activities on wildlife habitat, forestry, range use, and watershed.

Scenic Values

The plan should consider:

> the compatibility and consistency with adjacent land uses;
>
> the impacts of scenic management decisions on forestry and range management, and oil and gas leasing;
>
> public attitudes; and
>
> existing visual resource ratings.

Cultural and Historic Sites

The RMP should follow the guidance outlined in the *State Director Guidance* (USDI, BLM 1983b) on recreation and cultural resources, the requirements of the National Register of Historic Places (36 CFR 60, 63), and the requirements for the protection of historic and cultural properties (36 CFR 800). The plan should consider:

> public attitudes and amount of visitor use;
>
> the cost of management;
>
> the impacts on other resource values;
>
> the compatibility with adjacent land uses;
>
> the impacts of nonmanagement on recreation, cultural, and historic values;
>
> the impacts on sites from other uses such as timber, motorized travel, other recreation, mining, etc.; and
>
> the relationship to national, state, and regional significance and user attraction.

CHAPTER 2
ALTERNATIVES, INCLUDING THE PROPOSED ACTION

ALTERNATIVE FORMULATION OVERVIEW

Both the National Environmental Policy Act (NEPA) regulations and the BLM resource management planning regulations require the formulation of alternatives. Each alternative represents a complete and reasonable plan to guide future management of public land and resources. One alternative must represent no action. This means a continuation of present levels or systems of resource use. The other alternatives are to provide a range of choices from those favoring resource protection to those favoring resource production.

The basic goal in formulating RMP alternatives is to identify various combinations of public land uses and resource management practices that respond to the planning issues. All alternatives must prevent unnecessary and undue degradation, maintain resource productivity, and permit a sustained yield of resources.

Alternatives for the resolution of the land ownership adjustment issue were formulated by applying the interdisciplinary criteria for land retention and disposal as identified in the *Land Pattern Review and Land Adjustment Supplement to the State Director Guidance for Resource Management Planning* (USDI, BLM 1984). These criteria were derived from applicable laws, regulations, and BLM policy statements. In this case, two alternatives were formulated, no action (i.e., no criteria were applied) and the proposed action. Under the no action alternative it is assumed, for analysis purposes, that the existing public land ownership pattern would remain unchanged. However, in actual practice the Garnet Resource Area has had an active land adjustment program based on previous Management Framework Plan (MFP) recommendations. Two significant land exchanges with Plum Creek and Champion Timberlands have resulted in 7,300 acres of public land adjustment during the past decade.

The resolution of issues, identified in the scoping process, dictated which lands, resources, and programs would be addressed in the alternatives. Those lands, resources, and programs not affected by the resolution of any issue will be managed in the future essentially as they are at present. Future changes will be permitted based on case-by-case analyses and in accordance with applicable laws, regulations, and policies.

DELINEATION OF MANAGEMENT AREAS

The approach used to define and display alternatives for the Garnet RMP includes the delineation of management areas (see maps in map packet). Each management area, or MA, consists of a mappable, relatively homogeneous area of public land which, based on resource potentials and limitations, is suitable for management under a specific set of compatible management goals and guidelines. Each management area may occur in several places within the resource area. Management area boundaries do not always follow easily located topographic features or legal subdivisions. The boundaries are flexible to assure proper management of resources identified through additional on-the-ground reconnaissance and project planning.

Management area descriptions, goals, and guidelines for the Garnet Resource Area are based on resource capabilities, public issues, legal requirements, and policy considerations. These descriptions, goals, and guidelines are summarized in Table 2-1, and are described in detail in Appendix A.

TABLE 2-1
MANAGEMENT AREA SUMMARY

MA No.	Description	Goals and Guidelines
1	Riparian Protection Zone (Includes lands adjacent to rivers, perennial and intermittent streams, lakes, ponds, bogs, marshes, seeps, and wet meadows with high values for wildlife and fish habitat, visual and recreational enjoyment, watershed and water quality protection, and livestock forage.)	Emphasis will be on maintaining or enhancing riparian values while providing elements of old-growth or mature forest for wildlife habitat and providing opportunities for other uses. Livestock grazing generally will be permitted where already established. Utility corridor development generally will not be permitted. Timber management activities will be prohibited. These lands generally will remain in public ownership.
2	Riparian Multiple Use Zone (Includes lands adjacent to perennial and intermittent streams, ponds, bogs, marshes, seeps, springs, and wet meadows with value for wildlife and fish habitat, visual and recreational enjoyment, watershed and water quality protection, and livestock forage.)	Emphasis will be on maintaining or enhancing riparian values while managing timber and providing for other uses. Livestock grazing generally will be permitted. Utility corridor development will be possible. Timber management activities will be permitted; however, harvest generally will occur only when timber sales are scheduled for adjoining lands. Timber management practices will include special measures to protect riparian values. These lands may be considered on a case-by-case basis for use in land tenure adjustment actions.
3	General Forest Management (Consists of commercial forest lands of varying physical environments classified as suitable for sustained yield timber management through TPCC.)	Emphasis will be on managing timber to maintain healthy stands, optimize timber growing potential, and regulate sustained timber production while maintaining site productivity, water quality, and stream stability and providing for other uses. Livestock grazing generally will be permitted. Utility corridor development will be possible. A broad range of timber production activities will be permitted. Timber management practices will include special measures to protect riparian values and specific big game features. These lands may be considered on a case-by-case basis for use in land tenure adjustment actions.
4	Elk Summer and Fall Habitat Components (Includes high density mappable portions of the RA's key elk summer and fall habitat. It includes commercial forest, noncommercial forest, and nonforest lands containing features such as wallows, mineral licks, travel corridors, and important forage and security areas in close proximity, which tend to concentrate big game animals in a relatively small area.)	Emphasis will be on maintaining or improving elk summer and fall habitat components and other wildlife habitat values while managing timber and providing for other uses. Livestock grazing generally will be permitted. Utility corridor development generally will not be permitted. A broad range of timber management activities will be permitted. Timber management practices will be designed to maintain or improve elk summer and fall habitat components and will include special measures to protect riparian values and specific big game features. These lands generally will remain in public ownership.

MA No.	Description	Goals and Guidelines
5	Big Game Summer and Fall Range (Consists of commercial forest, noncommercial forest, and nonforest lands which are important spring, fall, and summer ranges for elk. Lands managed by BLM constitute a substantial proportion of the lands within the big game habitat unit, permitting some degree of control over forage to cover ratios in the habitat unit. These lands will be managed to provide summer cover and forage for big game through regulated timber harvest.)	Emphasis will be on balancing forage and cover requirements for big game on summer and fall ranges while managing timber and providing for other uses. Livestock grazing generally will be permitted. Utility corridor development will be possible. A broad range of timber management activities will be permitted. Timber management practices will be designed to maintain or improve big game summer and fall habitat, particularly cover and forage relationships, and include special measures to protect riparian values and specific big game features. These lands generally will remain in public ownership.

MA No.	Description	Goals and Guidelines
6	Big Game Winter Range (Consists of commercial forest, noncommercial forest, and nonforest lands which are winter ranges for deer, elk, or bighorn sheep. These lands will be managed to attain a balance of winter cover and forage for big game through regulated timber harvest.)	Emphasis will be on enhancing forage production and cover for big game on winter ranges while managing timber and providing for other uses. Livestock grazing generally will be permitted. Utility corridor development will be possible. A broad range of timber management activities will be permitted. Timber management practices will be designed to maintain or improve big game winter range, particularly cover and forage relationships, and include special measures to protect riparian values and specific big game features. These lands generally will remain in public ownership.

MA No.	Description	Goals and Guidelines
7	Noncommercial Forest and TPCC Withdrawn Commercial Forest (Includes noncommercial forest land as well as commercial forest land withdrawn from timber management as a result of TPCC classification. These areas may include cliffs, caves, rock outcrops, talus, and old-growth timber.)	Emphasis will be on maintaining site productivity, water quality, and stream stability while providing wood products; maintaining elements of old-growth, mature forest, and unique features for wildlife habitat; and providing for other uses. Livestock grazing generally will be permitted. Utility corridor development will be possible. Timber management activities will be permitted; however, harvest generally will occur only when timber sales are scheduled for adjoining lands or when needed to meet other management goals for the area. Timber management practices will include special measures to protect riparian values. These lands may be considered on a case-by-case basis for use in land tenure adjustment actions.

TABLE 2-1

MANAGEMENT AREA SUMMARY

MA No.	Description	Goals and Guidelines
8	Areas Recommended for Wilderness Designation (Consists of portions of the resource area that are being recommended for wilderness designation. Each such area has been evaluated under either Section 202 or 603 of the Federal Land Policy and Management Act. Wilderness recommendations are based upon review of the Wales Creek WSA, Hoodoo Mountain WSA, Gallagher Creek 202 Study Area, and Quigg West 202 Study Area.)	Emphasis will be on preserving wilderness character and providing opportunities for public use and enjoyment while allowing nonconforming but accepted uses and preventing unnecessary or undue degradation of wilderness character. Livestock grazing generally will be permitted where established. Utility corridor development and timber management activities will be prohibited. Mining and mineral leasing will be prohibited subject to valid existing rights. These lands will remain in public ownership.
9	Special Management Areas (Areas distinguished by special, unique, or natural characteristics which require some form of special management including, where appropriate, Area of Critical Environmental Concern (ACEC) designation.)	Emphasis will be on maintaining the special, unique, or natural characteristics of each area while providing opportunities for dispersed recreation, research, observation, study, environmental education, and interpretation. Livestock grazing generally will be permitted where already established. Utility corridor development generally will not be permitted. Timber management activities will be possible if consistent with site-specific management goals. These lands generally will remain in public ownership.
10	Developed and Undeveloped Recreation Sites (Consists of existing and potential recreation use areas with developed, minimal, or no facilities to support a wide range of recreation activities. Most recreation sites are located within riparian areas.)	Emphasis will be on maintaining and enhancing recreation sites while managing timber and maintaining site productivity, water quality, and stream stability. Livestock grazing generally will be permitted. Utility corridor development generally will not be permitted. Timber management activities will be permitted; however harvest generally will be limited to sanitation or salvage and will occur only when timber sales are scheduled for adjoining lands or when needed to meet other management goals for the area. Timber management practices will include special measures to protect riparian values. These lands generally will remain in public ownership.
11	Historical and Cultural Sites (Consists of scattered sites within or adjacent to BLM lands that are protected because of historical and cultural significance. These include Garnet, Coloma, Reynolds City, Copper Cliff, Blackfoot City, Beartown, Bearmouth, and other sites that qualify for the National Register of Historic Places.)	Emphasis will be on protecting historic and cultural sites that are eligible for inclusion on the National Register. Livestock grazing generally will be permitted. Utility corridor development generally will not be permitted. Timber management activities will be prohibited. Withdrawal from mineral entry will be sought. These lands generally will remain in public ownership.

MA No.	Description	Goals and Guidelines
12	Visual Corridor (Consists of lands with high visual sensitivity that are available for varying degrees of resource management. These lands are generally areas seen from major highway and recreation corridors.)	Emphasis will be on maintaining or improving visual quality within areas of high visual sensitivity and high scenic quality while managing timber and providing for other uses. Livestock grazing generally will be permitted. Utility corridor development will be possible. Timber management activities will be permitted. Timber management practices will be designed to maintain or improve visual quality, and include special measures to protect riparian values. These lands may be considered on a case-by-case basis for use in land tenure adjustment actions.

MA No.	Description	Goals and Guidelines
13	Nonforest Habitat (Consists primarily of grassland and shrubland with minor inclusions of forest. It includes wet meadows, dry parks, and open grassland and shrubland varying in size from a few to several hundred acres. These lands provide high wildlife and livestock forage values.)	Emphasis will be on maintaining or enhancing forage production for livestock and wildlife while maintaining site productivity, water quality, and stream stability and providing for other uses. Livestock grazing generally will be permitted. Utility corridor development will be possible. Timber management activities will be unlikely. These lands may be considered on a case-by-case basis for use in land tenure adjustment actions.

MA No.	Description	Goals and Guidelines
14	Mineral Production Area (Consists of active or recently active mineral extraction and processing operations and the immediate surrounding vicinity. Total acreages in this management area will fluctuate as other mining operations are identified or old operations are reclaimed.)	Emphasis will be on allowing for mineral production while restoring water quality and rehabilitating site productivity and stream stability through reclamation. Livestock grazing generally will be permitted. Utility corridor development will be possible. Timber management activities will be unlikely. These lands generally will remain in public ownership unless mineral values warrant patenting.

A total of 14 management areas have been identified for use in the Garnet RMP. Management area goals and guidelines, along with the resource areawide management guidance common to all alternatives and the responses to needed decisions, define what the total management direction is and how it will be implemented. This set of management areas, when applied in various combinations, allows for the formulation of alternatives portraying a broad range of management practices.

The management guidelines needed to accomplish the goals for each management area include appropriate mitigation and resource coordination measures, as required by NEPA and other applicable laws, regulations, and policies. The management area concept used in this RMP has been applied and tested on the Garnet Resource Area during the development of Compartment Management Plans (CMPs); it also is used in the development of national forest plans for lands adjoining the Garnet Resource Area.

INTERIM MANAGEMENT OF WILDERNESS STUDY AREAS

In the case of Section 603 Wilderness Study Areas (WSAs) being recommended for nonwilderness management, the preferred management area goals and guidelines may be inconsistent with the Interim Management Policy for WSAs. Implementation of such goals and guidelines will be deferred until Congress takes action on the wilderness suitability recommendations.

MANAGEMENT GUIDANCE COMMON TO ALL ALTERNATIVES (STANDARD OPERATING PROCEDURES)

The following management guidance consists of Standard Operating Procedures applicable to the entire resource area. This guidance constitutes a part of the total management direction for all alternatives considered in detail. It is presented here to avoid repetition.

Soil, Water, and Air Program

Soil, water, and air resources will continue to be evaluated and monitored on a case-by-case basis as a part of project level planning. The level of such evaluation and monitoring will be based upon the significance of the proposed project and the sensitivity of soil, water, and air resources in the affected area. Stipulations will be attached as appropriate to ensure compatibility of projects with management area goals and guidelines for soil, water, and air resources. It is the policy of the Garnet Resource Area to maintain, enhance, or restore site productivity, water quality, and stream stability on all public lands.

Air Quality

The BLM is a party to the Montana Smoke Management Cooperative Agreement. Under this agreement, the BLM will continue to work with state and local airshed groups to minimize air quality impacts from prescribed burns and similar activities. This will be done primarily through coordination with other agencies and by burning only when there is adequate smoke ventilation within the affected airshed. The watering of roads may be required during periods of construction or heavy traffic to alleviate localized dust problems.

Watershed Management

Surface disturbing activities will continue to be designed so as to maintain soil productivity, minimize erosion, and maintain or improve water quality and stream channel stability. Typical watershed concerns in the resource area will continue to be addressed through application of the following guidelines.

The Timber Productivity Capability Classification (TPCC) system, which is based on soil survey data, habitat types, elevation, aspect, and topography, will be used to classify forest lands (see Appendix C). The TPCC system considers soil compaction and erosion potential, soil climate, and soil chemical and physical properties as related to silvicultural practices.

Stream channel protection will be effected through the use of such measures as the FS Region One *Vegetation Manipulation Guidelines,* (USDI, FS 1965b) which are designed to limit increases in stream runoff to levels compatible with the capability of the channel to handle potential changes in flow and/or increases in sediment.

Best Management Practices (BMP), as developed through the Montana Statewide 208 Study, will be used to control nonpoint sources of water pollution resulting from forest management practices and similar activities. General Best Management Practices applicable to the Garnet Resource Area are identified in Appendix B. In addition, more specific soil unit BMPs will be utilized on a case-by-case basis. These BMPs, which have not yet been formalized, reflect more localized soil physical, chemical, and climate conditions. Recommendations drawn from these BMPs may include silvicultural systems to be applied, treatment of slash residual, slash disposal methods, and skidding methods, all oriented toward maintaining soil productivity on specific soil units.

Projects covered by BMPs will be monitored to assess the degree to which BMPs are being applied and the effectiveness of their application. BMPs will be monitored through stream discharge and sediment measurements. An interdisciplinary, on-the-ground evaluation team (soils, hydrology, forestry, and wildlife) will be used to increase the effectiveness of BMP monitoring. In accordance with an existing Memorandum of Understanding between the BLM and the State of Montana, an annual report will be made to the Montana Water Quality Bureau concerning BMP application and effectiveness.

For timber sale planning, soils information, generally in the form of a soils map accompanied by a physical and chemical properties table, will be used to define soil capabilities and to recommend soil BMPs and mitigating measures. Hydrology information, where available, will be used to describe existing water quality and quantity; such information will also be used as a reference point for future monitoring of hydrologic conditions.

Corrective measures will be applied where unsatisfactory watershed conditions are identified. Such measures may be implemented through project-level plans (watershed, habitat, allotment, or compartment management plans); such measures may also be implemented through stipulations attached to permits, leases, and other authorizations.

Management activities in riparian zones generally will be designed to maintain or, where possible, improve riparian habitat condition. Roads and utility corridors will avoid riparian zones to the extent practicable. Prescribed fire will not be used within 75 feet of stream channels.

Energy and Minerals Program

Public lands generally will remain available for the exploration, development, and production of energy and mineral resources; such activities will be regulated to prevent unnecessary and undue degradation of surface resource values to the extent practicable. Such activities will also be guided by management area goals and guidelines (see Appendix A).

Areas of federal subsurface ownership underlying private land also will generally remain available for energy and mineral exploration and development. Surface owners must be consulted by claimants/lessees. Proposed activities will be reviewed and authorized on a case-by-case basis.

Locatable Minerals

All public land is open to mineral entry and development except where withdrawn to protect other resource values and uses. Mining activities on public land will be regulated under 43 CFR 3809 to prevent unnecessary and undue degradation of surface resources and to ensure reasonable reclamation of disturbed sites. Standard procedures used in processing notices and plans of operations under the 3809 Regulations are summarized in Appendix D.

Validity examinations may be requested under the following conditions:

> where a mineral patent application has been filed and a field examination is required to verify the validity of the claim(s);
>
> where there is a conflict with a disposal application, and it is deemed in the public interest to do so, or where the statute authorizing the disposal requires clearance of any encumbrance;
>
> where the land is needed for a federal program; or
>
> where a mining claim is located under the guise of the mining law and flagrant unauthorized use of the land or mineral resource is occurring.

Public land will be opened to mineral entry where mineral withdrawals are revoked.

Oil and Gas Leasing

All public land is available for oil and gas leasing, with the exception of land recommended for wilderness designation.

Site-specific decisions regarding lease issuance and the attachment of appropriate stipulations will continue to be based on application of the Butte District Oil and Gas Leasing checklist and the leasing guidelines contained in the Butte District Oil and Gas Leasing Environmental Assessment (issued September 1981). Standard and special stipulations and the Butte District Oil and Gas Leasing checklist are included in Appendix E.

All oil and gas leases will be issued with standard stipulations attached. Special stipulations will be attached where needed to protect seasonal wildlife habitat and/or other sensitive resource values. In highly sensitive areas, where special stipulations are not sufficient to protect important surface values, stipulations prohibiting surface occupancy will be attached.

Oil and gas leasing guidance identified in this plan will apply only to leases processed after RMP approval. Existing leases will run their full term with only those stipulations attached at the time of lease issuance. Leases included in an operating unit or any future unit where production is established will remain unaffected by new stipulations as long as production continues or until leases are terminated.

Phosphate, Geothermal, and Other Leasables

Lease applications will continue to be processed as received. Site-specific decisions regarding lease issuance and the attachment of appropriate stipulations will be based on interdisciplinary review of each proposal.

Common Variety Mineral Materials

Applications for the removal of common variety mineral materials, including sand and gravel, will continue to be processed on a case-by-case basis. Stipulations to protect important surface values will be attached based on interdisciplinary review of each proposal.

Lands Program

Land Ownership Adjustments

The supplement to the State Director Guidance on *Land Pattern Review and Land Adjustment* (USDI, BLM 1984) provides criteria for use in categorizing public land for retention or adjustment, and for identifying acquisition priorities. Site-specific decisions regarding land ownership adjustment in the resource area will be made based largely on the following criteria derived from the supplement to State Director Guidance. This list is not considered all-inclusive, but represents the major factors affecting land adjustment in the Garnet Resource Area.

Areas of National Significance. Areas that have national environmental significance include wilderness, wilderness study areas, former WSAs being studied for protective management, ACECs, and wetlands and riparian areas under Executive Order 11990. Areas that have national cultural and recreational significance include lands nominated or eligible for the National Register of Historic Places or designated as National Scenic and Historic Trails.

Areas Containing Important Features. Areas that have important wildlife features include threatened and endangered species habitat, prime fisheries habitat, big game seasonal habitat, waterfowl and upland game bird habitat, and habitat for sensitive species including raptors and other nongame species.

Areas that have important recreational and cultural features include hunting and fishing sites, snowmobile trails, and areas that contribute significantly to the interpretive potential of cultural resources already in public ownership. Areas that have important watershed features include strategic tracts along rivers, streams, lakes, ponds, and springs.

Areas Important to BLM Programs. These areas include tracts of public land that are consolidated enough to make management of their resources cost effective, and have physical and legal access. Access generally should allow for public use but, at the least, should allow administrative access to manage the resources. Areas usually contain a combination of multiple use values and have characteristics that facilitate BLM priorities on the national, state, and local level. Areas may have improvements that represent public investments; be encumbered by R&PP leases, withdrawals, mining claims, etc.; or be managed by cooperative agreements with other agencies.

Areas Important to the Economy. These areas include tracts having mineral potential and lands that contribute significantly to the stability of the local economy by virtue of federal ownership.

The land ownership adjustment criteria identified above will be considered in land reports and environmental analyses prepared for specific adjustment proposals.

Public land within retention areas (see the Land Pattern Adjustment map in the map packet) generally will remain in public ownership and be managed by the BLM. Transfers to other public agencies will be considered where improved management efficiency would result. Minor adjustments involving exchanges or sales may be permitted based on site-specific application of the land ownership adjustment criteria.

Public land outside of retention areas may have potential for removal from BLM administration through exchanges or sales. Some of these lands may be retained in public ownership based on site-specific application of the land ownership adjustment criteria. In addition, BLM will respond to land adjustment proposals from the public. Exchanges will generally be preferred to sale. Public land identified for exchange or sale must meet the disposal criteria in *Land Pattern Review and Land Adjustment Supplement to State Director Guidance* (USDI, BLM 1984) and in Sections 206 and 203 of the Federal Land Policy and Management Act. No tracts will be exchanged or sold without proper environmental documentation and the required notification in the Federal Register and local newspapers.

Land to be acquired by BLM through exchange ordinarily must be located in retention areas. In addition, acquisition of such land should facilitate access to public land and resources, maintain or enhance important public values and uses, maintain or enhance local social and economic values, or facilitate implementation of other aspects of the Garnet RMP.

Consolidation of surface and subsurface ownership should be accomplished whenever possible to improve resource management opportunities and development potential.

Unauthorized Use

Unauthorized uses of public land will be resolved either through termination, authorization by lease or permit, or sale. Decisions will be based on the type and significance of improvements involved; conflicts with other resource values and uses, including potential values and uses; and whether the unauthorized use is intentional or unintentional.

Withdrawals

Current BLM policy is to minimize the acreage of public land withdrawn from mining and mineral leasing and, where applicable, to replace existing withdrawals with rights-of-way, leases, permits, or cooperative agreements.

At the present time, 1,800 acres are effectively withdrawn from mining, mineral leasing, and/or sale, location, and entry under the public land laws (see Table 2-2).

TABLE 2-2

EXISTING WITHDRAWALS AND CLASSIFICATIONS[1]

Location		Acreage	Authority/ Purpose
T. 11 N., R. 8 W.,	Sec. 25	63	C&MU[2]
T. 14 N., R. 11 W.,	Sec. 18	159	C&MU
	Sec. 23	40	C&MU
	Sec. 26	120	C&MU
T. 11 N., R. 14 W.,	Sec. 14	58	C&MU
T. 13 N., R. 14 W.,	Sec. 33	5	C&MU
T. 12 N., R. 14 W.,	Sec. 3	14	R&PP[3]
T. 13 N., R. 14 W.,	Sec. 33	5	R&PP
		27	R&PP
T. 12 N., R. 13 W.,	Sec. 6	8	R&PP
T. 11 N., R. 16 W.,	Sec. 8	120	PSR[4]
T. 11 N., R. 17 W.,	Sec. 2	179	PSR
	Sec. 12	161	PSR
T. 12 N., R. 17 W.,	Sec. 18	49	PSR
T. 12 N., R. 18 W.,	Sec. 1	23	PSR
T. 10 N., R. 12 W.,	Sec. 10	40	PSR
T. 11 N., R. 13 W.,	Sec. 7	164	PSR
	Sec. 18	80	PSR
	Sec. 21	200	PSR
	Sec. 22	120	PSR
T. 11 N., R. 14 W.,	Sec. 14	131	PSR
T. 11 N., R. 15 W.,	Sec. 22	40	PSR

[1] Does not include an estimated 40 acres within linear withdrawals for roads and powerlines
[2] Classification and Multiple Use Act
[3] Recreation and Public Purposes Act
[4] Power Site Reservation

All existing powersite and power project withdrawals will remain in effect unless modified or revoked as a result of the withdrawal review process. All withdrawals under the Classification and Multiple Use Act and the Recreation and Public Purposes Act will be recommended for revocation. However, for important historic and cultural sites (MA 11), such recommendations will be contingent upon withdrawal under Section 204 of FLPMA.

As provided in Section 4(d)(3) of the Wilderness Act and subject to valid existing rights, the minerals in lands designated as wilderness would be withdrawn from all forms of appropriation under the mining and mineral leasing laws.

Utility and Transportation Corridors

Public land within identified exclusion areas will not be available for utility and transportation corridor development. Public land within avoidance areas ordinarily will not be available for utility and transportation corridor development. Exceptions may be permitted based on type of and need for facility proposed; conflicts with other resource values and uses, including potential values and uses; and availability of alternatives and/or mitigating measures.

All other public land usually is available for development of utility and transportation corridors. Exceptions will be based on consideration of the criteria identified above.

Recreation Program

A broad range of outdoor recreation opportunities will continue to be provided for all segments of the public, commensurate with demand. Trails and other means of public access will continue to be maintained and developed where necessary to enhance recreation opportunities and allow public use. Recreation areas receiving the heaviest use will receive first priority for operation and maintenance funds. Sites that cannot be maintained to acceptable health and safety standards will be closed until deficiencies are corrected.

Investment of public funds for new recreation developments will be permitted only on land identified for retention in public ownership. However, no such developments are envisioned during the life of this plan. Therefore management will be limited to protecting the recreation potential of undeveloped sites.

Recreation activity plans have been or will be prepared for the following Special Recreation Management Areas (SRMAs): Garnet National Winter Recreation Trail, Lewis and Clark Trail and Blackfoot River, Garnet Ghost Town, Blackfoot Special Management Area, Clark Fork River, and all wilderness study areas.

These plans will provide more specific management guidance for recreation and other resources in each SRMA, consistent with the RMP. SRMAs are identified on the basis of high recreation use, the significance of recreation resources regionally and nationally, and the need to resolve conflicts in resource management or use.

Recreation resources will continue to be evaluated on a case-by-case basis as a part of project and activity planning. Such evaluations will consider the significance of the proposed action and the sensitivity of recreation resources in the affected area. Stipulations will be attached as appropriate to assure compatibility of the developments with recreation management objectives.

Recreation special use permits will be evaluated and approved on a case-by-case basis. This includes permits for commercial use, competitive events and group activities such as trail rides, bicycle tours, and ORV events. No outfitter and guide permits will be issued for hunting except in conjunction with adjoining Forest Service permits.

Travel Planning and Motorized Vehicle Use

All public land will be designated as either open, limited, or closed to motorized vehicle use under authority of Executive Order 11644.

All existing road and area closures generally will remain in effect except for minor adjustments in the Chamberlain Creek drainage. New roads constructed in the future generally will be closed to motorized public use following completion of planned management activities. Cooperative closures involving adjoining landowners will be pursued in the Tenmile, Klondike, Warm Springs Creek, and Pearson Creek areas.

Public land within areas identified as limited to motorized vehicle use generally will receive priority attention during travel planning. Specific roads, trails, or portions of such areas may be restricted seasonally or yearlong to all or specified types of motorized vehicle use.

Public land within areas identified as closed to motorized vehicle use will be closed yearlong to all forms of motorized vehicle use. Exceptions may be allowed in wilderness study areas based on application of the Interim Management Policy.

Restrictions and closures will be established for specific roads, trails, or areas based on consideration of the following criteria:

> the need to promote user enjoyment and minimize use conflicts;
>
> the need to minimize damage to soil, watershed, vegetation, road beds, or other resource values;
>
> the need to minimize harassment of wildlife or significant degradation of wildlife habitat;
>
> the need to promote user safety; and
>
> the need to cooperate with adjoining landowners.

Visual Resources

Visual resources will continue to be evaluated as a part of activity and project plans using the VRM guidelines described in Appendix F. Such evaluation will consider the significance of the proposed project and the visual sensitivity of the affected area. Stipulations will be attached as appropriate to mitigate impacts on visual resources.

Areas recommended for or designated as wilderness (MA 8) will be subject to Class I VRM guidelines. Certain lands generally within riparian zones, recreation or cultural sites, special management areas, and visual corridors (MA 1, 2, 9, 10, 11, and 12) will be subject to Class II or III VRM guidelines. All other public land will be subject to Class III, IV, or V VRM guidelines, as previously mapped and referenced in the Garnet Management Situation Analysis. The precise location of VRM Classes II through V may be delineated in more detail during project or activity planning, based on the standard criteria for evaluating scenic quality, visual sensitivity, and distance zones.

Cultural Resources

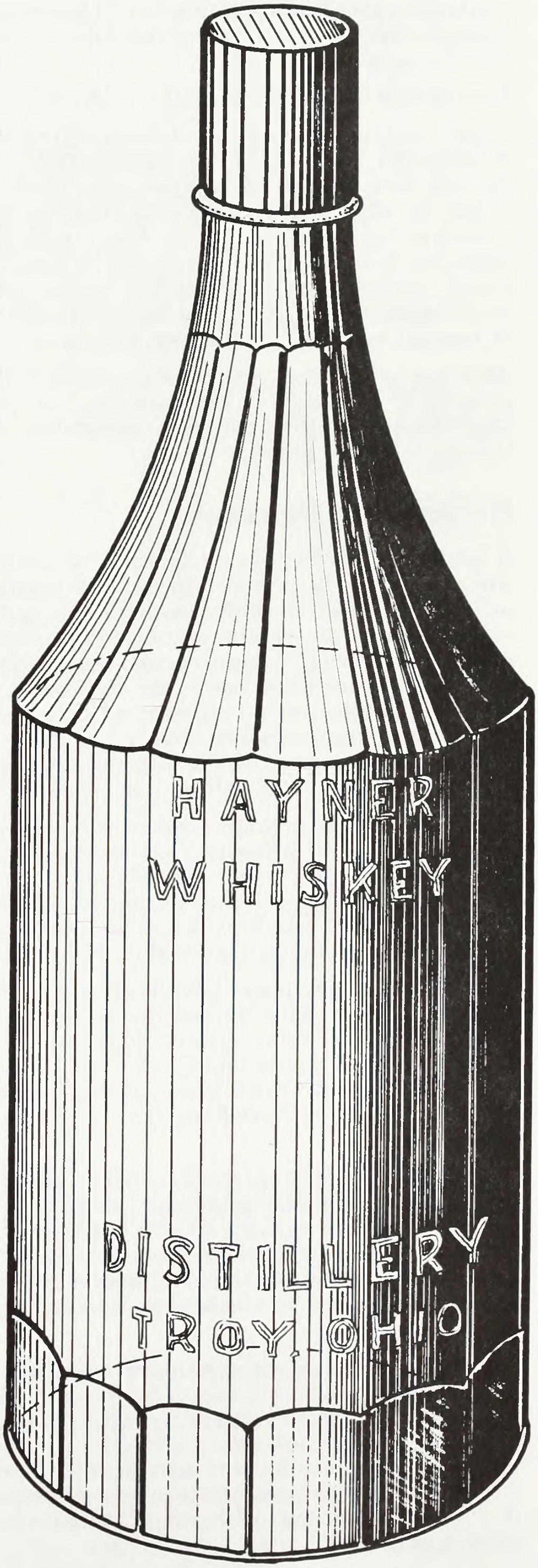
Cultural resource management will continue to focus on Garnet Ghost Town. This will include conducting historical research, recording architectural features, and stabilizing deteriorating structures. Cooperative management with the Garnet Preservation Association will continue with the goal of fully implementing the Garnet Ghost Town Management Plan.

Emphasis will also be placed on the interpretation of key sites near Garnet, including Reynolds City, Beartown, Springtown, Summit Cabin, and Coloma; and at Blackfoot City.

On the remainder of the resource area, cultural resources will continue to be inventoried and evaluated as part of project level planning in compliance with Sections 106 and 110 of the National Historic Preservation Act of 1966, as amended. Such evaluation will consider the significance of the proposed project and the sensitivity of cultural resources in the affected area. Stipulations will be attached as appropriate to mitigate impacts on cultural resources.

Standard Operating Procedures for cultural resource management are summarized below and are described in more detail in Appendix G:

> Cultural resource inventories will be completed prior to any ground-disturbing activity. Cultural resources will not be disturbed until evaluated by the District Manager or an authorized representative in consultation with the State Historic Preservation Officer to determine eligibility for inclusion on the National Register of Historic Places and/or the National Register of Historic Landmarks.
>
> Consultation will also include appropriate representative(s) of Native American groups or organizations for cultural resources valuable for ceremonial, religious, or other sociocultural purposes.
>
> Cultural resource sites generally will be protected from disturbance through project design and location. If sites are found to be eligible for the National Register(s) and cannot be avoided, a determination of the effect of the project on the site(s), including appropriate mitigating measures, will be made in consultation with the Montana Historic Preservation Officer and the National Advisory Council on Historic Preservation. No action affecting such sites will be permitted until the Advisory Council has had an opportunity to comment.



Adverse effects generally will be mitigated either through redesign of the proposed project so as to avoid the site or through complete excavation or other information recovery techniques. A memorandum of understanding will be developed with the Advisory Council to establish an acceptable level of mitigation for impacts on cultural resources when such impacts can not be avoided.

To provide for consideration of cultural resources not evident during inventories, a stipulation will be attached to each surface-disturbing project requiring the operator to temporarily suspend work if buried cultural remains are encountered. The District Manager or an authorized representative will then determine the action necessary for protection or salvage of the discovery.

Wilderness Resources

The Interim Management Policy will continue to be applied to all wilderness study areas identified under Section 603 of FLPMA, and to any areas studied under Section 202 of FLPMA and recommended as suitable for wilderness designation, until such areas are reviewed and acted upon by Congress. Other 202 WSAs will be managed in accordance with applicable guidance provided by this RMP.

Public land within areas added by Congress to the National Wilderness Preservation System will be managed in compliance with the Wilderness Management Policy. Site-specific wilderness management plans will be developed for such areas.

Areas reviewed by Congress but not added to the National Wilderness Preservation System will be managed in accordance with other applicable guidance provided by this resource management plan.

Forestry Program

Although the annual harvest varies, each alternative will maintain a timber sale program. The development of the sale program will be the same for all alternatives. The CFL is divided into compartments which are geographic units of roughly 3,000 acres. The TPCC suitable CFL in each compartment is further divided into stands. Each stand is analyzed through the operations inventory for stocking, condition, age, and volume, and is given a priority for treatment. In addition to the stand analysis, a transportation system is developed for each compartment.

To develop a sale, a number of high priority stands are selected and a timber sale plan and environmental analysis is prepared and reviewed with an interdisciplinary team. These stands, after they are harvested or treated, are then monitored to determine how sucessful the treatment was in obtaining the silvicultural objectives of the prescription and meeting the goals and objectives of the specific MAs for these stands.

A typical monitoring sequence for a stand begins with a survival survey one year after planting, and stocking surveys at three and five years to determine if the new stand meets BLM stocking standards. Additional surveys occur at age 20 to establish need for precommercial thinning; at years 40, 60, and 80 to determine suitability for commercial thinning; and at age 100 to prepare a prescription for harvest.

Yearly extensive detection surveys are made over all the forest land to monitor insect and disease trends. Funds are available for insect and disease control projects where control can occur through some silvicultural action.

Timber sale contracts are prepared for each sale. These contracts contain a wide range of standard clauses outlining the purchasers obligations for fire protection, watershed, soil protection, and road construction and maintenance. In addition to the standard clauses each contract will contain specific instructions on the location and manner in which the timber is to be harvested, location of required roads and construction specification for each road, and requirements for slash disposal, site preparation, timber stand improvement, regeneration, and performance bonds.

The timber management program is monitored on a stand basis. As stands are inventoried through the operations inventory a management program is prepared for the stand through rotation. Each step or activity in the management progression for the stand is monitored and evaluated to determine the timing for the next treatment. The stand development and the management objective must be reached before the next treatment phase is initiated.

Range Program

Allotment Categorization

All grazing allotments have been assigned to one of three management categories based on present resource conditions and the potential for improvement (see Appendix H). The M allotments generally will be managed to maintain current resource conditions; I allotments generally will be managed to improve resource conditions; and C allotments generally will receive custodial management to prevent resource deterioration.

Implementing Changes in Allotment Management

Allotment Management Plans (AMPs) generally will describe in detail the types of changes needed in an allotment and establish a schedule for implementation. Such plans will be based upon approved management objectives and guidelines established through the RMP process. Proposed changes in allotment management will be subject to the environmental review process, and such proposals will be modified or rejected when needed to mitigate adverse environmental impacts. Existing AMPs will be reviewed to assure consistency with RMP objectives and guidelines; wildlife and riparian habitat management objectives and forest regeneration considerations will be incorporated into existing AMPs as needed. The following sections contain discussions of changes likely to be recommended in an allotment management plan and the guidance that applies to these administrative actions.

Livestock Use Adjustments. Livestock use adjustments are most often made by changing one or more of the following: the kind or class of livestock grazing an allotment, the season of use, the stocking rate, or the pattern of grazing. For each of the five alternatives presented in this RMP, target stocking rates have been set for each allotment (refer to Appendix I). While most livestock use adjustments will occur in the I allotments, use adjustments are permitted for allotments in categories C and M.

In reviewing the target stocking rate figures and other recommended changes, it is emphasized that the target AUM figures are not final stocking rates. Rather, all livestock use adjustments will be implemented through documented mutual agreement or by decision. When adjustments are made through mutual agreement, they may be implemented once the Rangeland Program Summary has been through a public review period. When livestock use adjustments are implemented by decision, the decision will be based on operator consultation, range survey data, and monitoring of resource conditions.

Current BLM policy emphasizes the use of a systematic monitoring program to verify the need for livestock adjustments proposed on the basis of one-time inventory data. Monitoring will also measure the changes brought about by new livestock management practices and evaluate the effectiveness of these management practices in meeting stated objectives.

The federal regulations that govern changes in allocation of livestock forage provide specific direction for livestock use adjustments implemented by decision (43 CFR 4110.3). These regulations provide guidance for the allocation of additional forage on a temporary and a permanent basis, as well as guidance for reducing the livestock grazing capacity due to a decrease in available forage. Permanent increases in the allocation of livestock forage or suspension of preference will generally be implemented over a five-year period but can be implemented in less than five years when agreement between the BLM and affected interests is reached to shorten the time span, or when a shorter period is necessary to protect public lands due to conditions created by such factors as fire, drought, or insect infestations, and a final decision is issued and placed in full force and effect under 4160.3(C) of this title.

Range Improvements and Treatments. Range improvements and treatments will be implemented under all alternatives. Typical range improvements and treatments and the general procedures to be followed in implementing them are described in Appendix J. The extent, location, and timing of such actions will be based on the allotment specific management objectives adopted through the resource management planning process, and on interdisciplinary development and review of proposed actions and alternatives.

Weed control efforts on public lands will be designed to prevent the invasion of noxious weeds into areas presently free of weeds. Target weeds will include knapweed, leafy spurge, and musk thistle. Priority will be placed on control efforts along primary public access roads into public lands, control of spot infestations, and cooperation with adjoining landowners in the control of large weed infestations.

Allotments in which range improvement funds are to be spent will be subjected to an economic analysis. The analysis will be used to develop a priority ranking of allotments for the commitment of range improvement funds that are needed to implement activity plans. The highest priority for implementation generally will go to those improvements for which the total anticipated benefits exceed costs. Other factors to be considered include resource needs, public participation, operator contributions, and BLM funding capability.

Grazing Systems. Grazing systems will be used in all alternatives. The type of system selected for each AMP will be based on consideration of the following factors: allotment specific management objectives; resource characteristics, including vegetation potential and water availability; operator needs; and implementation costs.

Typical grazing systems available for consideration are described in Appendix K.

Unleased Tracts. Unleased tracts will remain available for leasing, as provided for in the BLM grazing regulations (43 CFR 4110 and 4130), unless the RMP indicates no grazing will be allowed. Lands to be excluded from grazing may be made available for livestock use on a temporary, nonrenewable basis at the discretion of the Area Manager if such use would meet management goals and objectives for the area.

Wildlife and Fisheries Program

General

Wildlife and fish habitat will be evaluated on an individual basis as a part of project level planning. Each evaluation will consider the significance of the proposed action and the magnitude of impacts to wildlife habitat. Appropriate stipulations or restrictions will be used to mitigate these impacts.

Habitat improvement and maintenance projects will be implemented where needed to stabilize or improve habitat conditions. These projects will be identified through coordinated resource activity plans.

Threatened, Endangered, and Sensitive Species

No activities will be permitted in habitat for threatened and endangered species that would jeopardize continued species existence. Whenever possible, management activities in threatened, endangered, and sensitive species habitat will be designed to benefit those species through habitat improvement.

Fish and Wildlife Service and the Montana Department of Fish, Wildlife, and Parks will be consulted prior to actions that may affect threatened and endangered habitat. Whenever the BLM biological assessment process determines such habitat may be affected, consultation with the Fish and Wildlife Service will be initiated as per Section 7 of the Endangered Species Act, as amended.

Inventory and monitoring of occupied and potential threatened and endangered habitat will continue on the resource area.

Terrestrial Wildlife Habitat

Road and area closures will be pursued for wildlife security and other resource values. Wildlife habitat goals and objectives will be included in all resource activity plans and projects that could affect wildlife habitat.

The Montana Department of Fish, Wildlife, and Parks (MDFWP) will be consulted prior to vegetative manipulation projects in accordance with Supplement #1 of the Master Memorandum of Understanding, 1977. In addition, MDFWP will be consulted on timber harvest and timber stand improvement projects. All animal control programs will be coordinated with the U.S. Fish and Wildlife Service, MDFWP, and in the case of aerial gunning requests, with the Montana Department of Livestock.

Management actions within floodplains and wetlands will include measures to preserve, protect, and if necessary, restore their natural functions, as required by Executive Orders 11988 and 11990. Water crossings will be designed and installed to minimize sediment production and maintain adequate fish passage. Riparian habitat management needs will be considered when developing grazing systems, locating roads, and during layout of timber management activities.

Where applicable, the Montana Cooperative Elk Logging Study recommendations (USDA, FS 1982) including any future revisions will be followed (see Appendix S).

The resource area snag management policy will be followed.

Cadastral Survey Program

Cadastral surveys will continue to be conducted in support of resource management programs. Survey requirements and priorities will be determined on a yearly basis as a part of the annual work planning process.

Fire Program

The primary fire protection objectives will be to prevent, detect, suppress, and monitor all fires on BLM lands. These objectives may be accomplished through contract with the Montana Department of State Lands.

A fire management plan will be prepared to establish areas in which the appropriate suppression action of control or confinement will be implemented for all fire starts. The plan may also identify areas and conditions where the use of heavy equipment is restricted or prohibited. Approval of the fire management plan will be based on consideration of values at risk; fire behavior; fire occurrence; beneficial fire effects, including but not limited to a reduction in fuel loading; fire suppression costs; and consistency with other agency plans and policies.

Road and Trail Construction and Maintenance Program

Road and trail construction and maintenance will continue to be conducted in support of resource management objectives. Construction and maintenance requirements and priorities will be determined on a yearly basis as a part of the annual work planning process.

Investment of public funds for road and trail construction generally will be permitted only on land identified for retention in public ownership. Exceptions may be allowed where investment costs can be recovered as a part of land disposal actions. Acquiring access or building roads to tracts outside the retention zones may be required for resource management activities such as timber sales.

Specific road and trail construction standards will be determined based on consideration of resource management needs; user safety; impacts to environmental values, including but not limited to wildlife and fisheries habitat, soil stability, recreation, and scenery; and construction and maintenance costs.

ALTERNATIVES CONSIDERED IN DETAIL

Five alternatives were considered in detail during the development of the proposed RMP. These alternatives explore a reasonable range of issue resolution scenarios as required by the National Environmental Policy Act regulations and the BLM planning regulations. The preferred alternative, or proposed RMP, incorporates portions of the other four alternatives and generally represents a middleground approach to issue resolution.

Alternative A (No Action)

Alternative A represents a continuation of present management direction. This alternative is derived from five approved management framework plans, programmatic environmental assessments, State Director Guidance, completed activity plans, and various statutes, policy directives, and regulations. The purpose of Alternative A is to provide a baseline for the comparison of other alternatives. Management area allocations are summarized in Table 2-3 and illustrated on the Alternative A Management Areas map in the map packet.

TABLE 2-3

SUMMARY OF MANAGEMENT AREA ALLOCATIONS FOR ALTERNATIVE A

Management Area	Acres	% of Resource Area[1]
1. Riparian Protection Zone	760	0.5
2. Riparian Multiple Use Zone	640	0.4
3. General Forest Management	63,460	43.6
4. Elk Summer and Fall Habitat Components	640	0.4
5. Big Game Summer and Fall Range	11,800	8.1
6. Big Game Winter Range	19,500	13.4
7. Noncommercial Forest & TPCC Withdrawn Commercial Forest	9,500	6.5
8. Areas Recommended For Wilderness Designation	0	0
9. Special Management Areas	28,457	19.5
10. Developed and Undeveloped Recreation Sites	40	0.1
11. Historical and Cultural Sites	160	0.1
12. Visual Corridor	6,500	4.5
13. Nonforest Habitat	3,200	2.2
14. Mineral Production Area	1,000	0.7

[1] Percentages do not total 100 due to rounding

The response to each issue and needed decision is determined largely by existing management guidance and direction. In addressing the decision on land ownership adjustments, the no action alternative is defined as maintaining the existing land ownership pattern. However, for most issues and decisions, the no action alternative is defined more dynamically, allowing for a continuation of management activities which normally would be expected to occur in the future, consistent with existing guidance.

Renewable Resources

Under current management direction, 87,920 acres of Commercial Forest Land (CFL) would remain available for harvest. This represents 78 percent of the total CFL in the resource area. Approximately 1,216 acres of CFL would be harvested annually, yielding 6,370 thousand board feet (mbf) of timber per year. There would be 9.6 miles of new road constructed each year.

Most of the CFL acreage that would be set aside from harvest is located within the Wales Creek, Yourname Creek, Gallagher Creek, and Hoodoo Mountain areas. These areas contain 24,000 acres of CFL and are currently being managed to protect their wilderness values pending completion of the wilderness review process. Approximately 500 acres of CFL would be set aside or allocated to restrictive timber management to protect or maintain riparian and watershed values elsewhere in the resource area. An additional 22,000 acres of CFL would be allocated to restrictive management primarily to protect or enhance important wildlife habitat values.

The level of intensive timber management within the resource area would remain low and would include 100 acres of tree planting and 40 acres of thinning annually. Prescribed fire would be prohibited on 5,000 acres of public land, primarily adjacent to stream channels and within developed and potential recreation sites. Pesticide use would be prohibited on 1,400 acres within riparian areas.

Areas currently not leased for livestock grazing, 27,200 acres, would remain unavailable. These include the Wales Creek, Yourname Creek, Gallagher Creek, Cottonwood and Chamberlain Meadows areas. About 118,460 acres would remain available for grazing use. The current level of authorized livestock use would remain unchanged at 5,930 AUMs (refer to Appendix I).

The ten existing AMP allotments, encompassing 35,663 acres, would remain under intensive grazing management (see Table 2-4). However, the overall intensity of grazing management in the resource area would remain low. Range improvements and treatments would be implemented only where needed to complete existing AMPs or; in the case of fences, cattleguards, and weed control; as a result of new road construction and forest management activities. Such improvements would include 22 miles of fence, 7 cattleguards, 25 spring developments, 2 miles of pipeline, and 200 acres of weed control.

Special Attention Resources

All WSAs or other areas deferred from multiple use management by previous planning recommendations would remain allocated to special management (MA 9) with primary emphasis on wildlife, watershed, and dispersed recreation. No timber harvest or road construction would be allowed in these areas. Mineral entry and mineral leasing generally would be permitted. Motorized vehicle use generally would be prohibited except on existing roads and trails where use has been established. None of these areas would be recommended for wilderness designation, nor would there be any ACEC designations. WSA boundaries and alternative wilderness recommendations are displayed on the Individual WSA Boundary maps.

Approximately 1,400 acres of public land would be managed primarily to maintain or enhance a variety of riparian habitat values. All other riparian habitat would be managed under Standard Operating Procedures designed to maintain site productivity, water quality, and streambank stability.

A total of 32,000 acres would continue to be managed primarily to emphasize big game habitat including elk summer and fall habitat components, big game summer and fall range, and big game winter range. These areas are in addition to the 28,500 acres allo-

TABLE 2-4
EXISTING AMP ALLOTMENTS

Allotment Number and Name	Grazing System	Acres BLM	Acres Private	Year Initiated	Category
7118 Five Mile	3 Pasture R.R.	480	—	1972	M
7119 McElwain Creek	4 Pasture R.R.	6,358	3,485	1970	M
7121 Wales	3 Pasture R.R.	856	640	1971	M
7201 Devil Mountain	3 Pasture R.R.	2,018	8,991	1969	C
7207 Braziel Creek	3 Pasture R.R.	8,105	2,080	1971	M
7213 Marcum Mountain	3 Pasture D.R.	3,443	2,319	1975	M
7224 Warm Springs Creek	4 Pasture R.R.	7,361	13,567	1968	M
7316 Ram Mountain	4 Pasture R.R.	4,151	2,825	1969	M
7319 West Fork Buttes	4 Pasture R.R.	640	1,280	1969	M
7320 Stewart Lake	4 Pasture R.R.	2,251	2,640	1971	M

R.R. — rest rotation
D.R. — deferred rotation

cated to special management, where management emphasis would include the protection and enhancement of wildlife habitat values. An additional 12,700 acres of nonforest, noncommercial forest, and TPCC withdrawn commercial forest land would be managed with emphasis on maintaining old-growth and mature forest habitats and unique features for wildlife use.

Nonrenewable Resources

Under current management direction, 205,586 acres of federal minerals would be available for oil and gas leasing. Of this total, 36,874 acres would be leased with special stipulations, and 33,340 acres would not be available for surface occupancy.

Most of the acreage identified for no surface occupancy lies within areas allocated to special management (MA 9) including Wales Creek, Yourname Creek, Gallagher Creek, Hoodoo Mountain, and Quigg West. Other areas affected by oil and gas restrictions include the walk-in hunting areas; cultural and historic sites such as Garnet, Coloma, and Blackfoot City; and public lands along the Clark Fork and Blackfoot rivers.

All existing powersite and power project withdrawals, totalling 1,300 acres, will remain in effect under this alternative. Such withdrawals generally are located at existing and potential powersites and power projects along the Clark Fork and Blackfoot rivers. All other withdrawals under the Recreation and Public Purposes Act (R&PP) and the Classification and Multiple Use Act (C&MU) will be recommended for revocation. Approximately 160 acres associated with important cultural and historic sites (MA 11) will be recommended for withdrawal under Section 204 of FLPMA.

Land Ownership and Administration

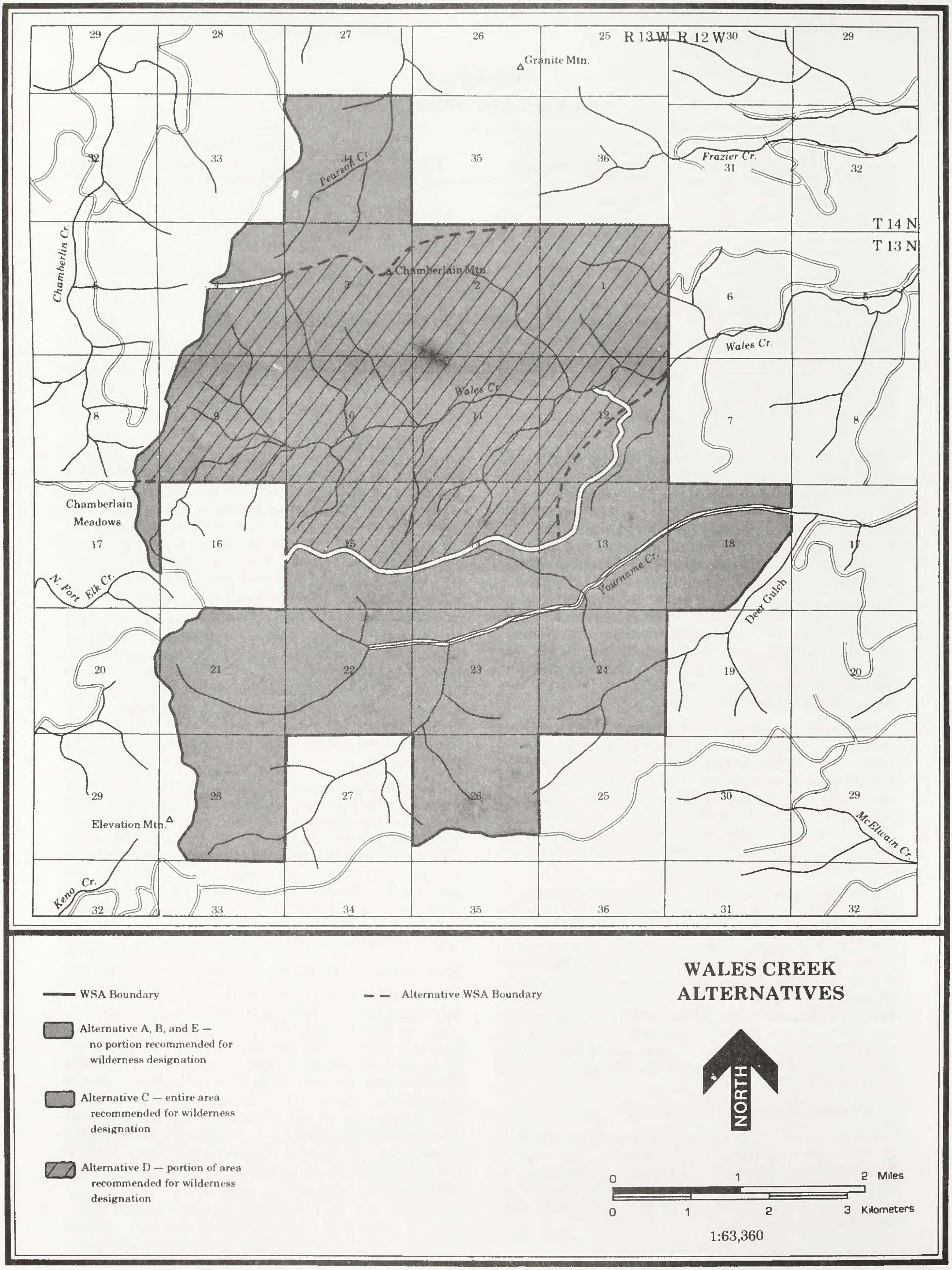
The existing public land ownership pattern would be maintained, even though current management guidance provides for an exchange program. For purposes of analysis, all 145,660 acres of public land would be retained in public ownership, and no additional lands would be acquired. About 115,600 acres would remain available for further consideration for possible routing of major utility and transportation rights-of-way. About 30,060 acres would remain within avoidance areas where rights-of-way would be discouraged. These areas generally consist of major riparian areas, recreation and cultural sites, and special management areas such as Wales Creek, Yourname Creek, Gallagher Creek, Hoodoo Mountain, and Quigg West.

The existing level of public and administrative access to public lands would continue unchanged under this alternative. Public access currently is available to 95 tracts totalling 114,600 acres or 78 percent of the total acreage. Administrative access only is available to an additional 13 tracts comprising 5,320 acres. The remaining 25,740 acres (about 200 tracts) are not legally accessible for either public or administrative purposes.

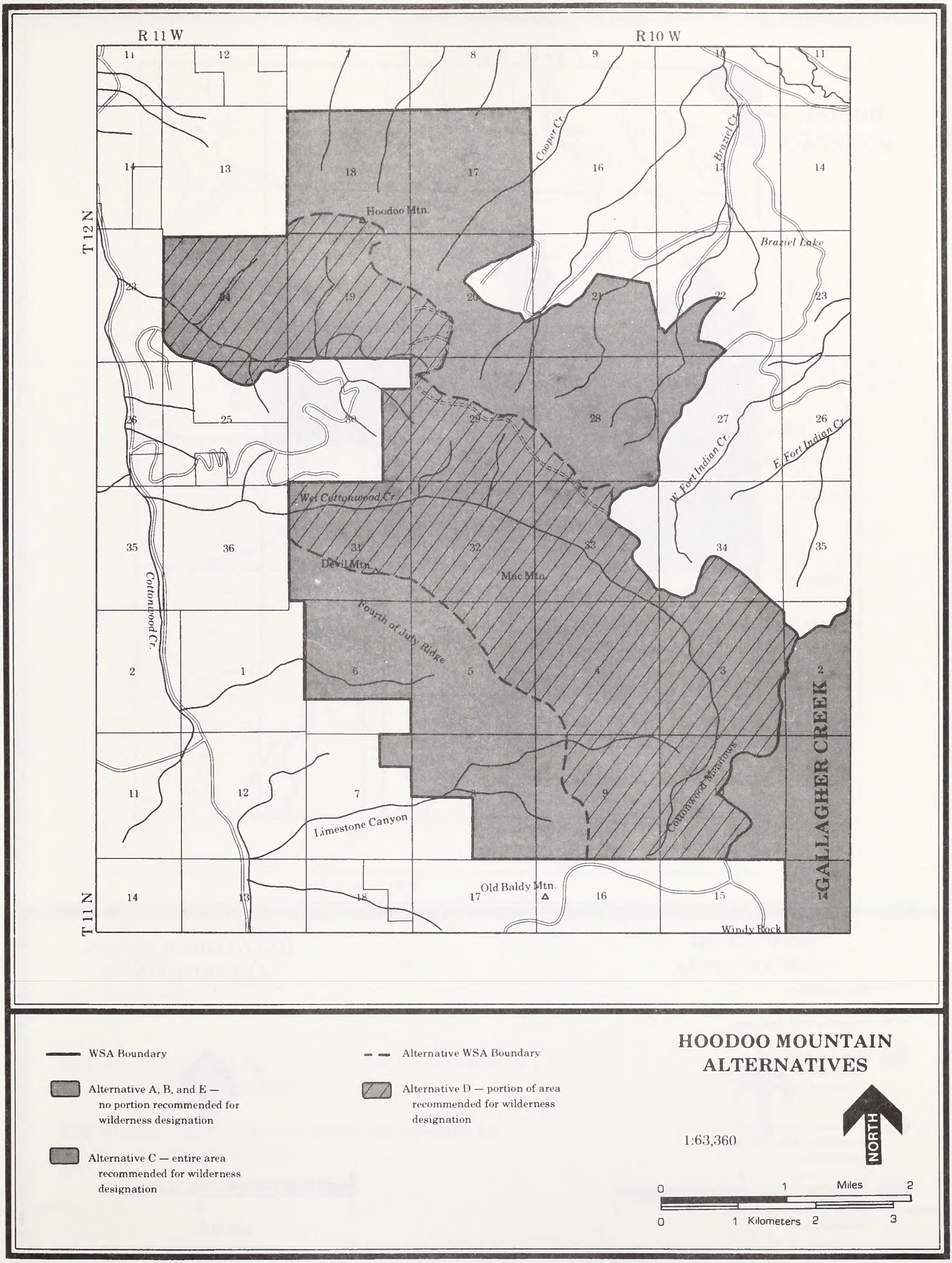
All existing powersite and power project withdrawals, totalling 1,300 acres, will remain in effect. Such withdrawals generally are located at existing and potential powersites and power projects along the Clark Fork and Blackfoot rivers. All other withdrawals under the R&PP and the C&MU will be recommended for revocation. A total of 160 acres associated with important cultural and historic sites (MA 11) will be recommended for withdrawal under Section 204 of FLPMA.

Recreation, Cultural, and Aesthetic Resources

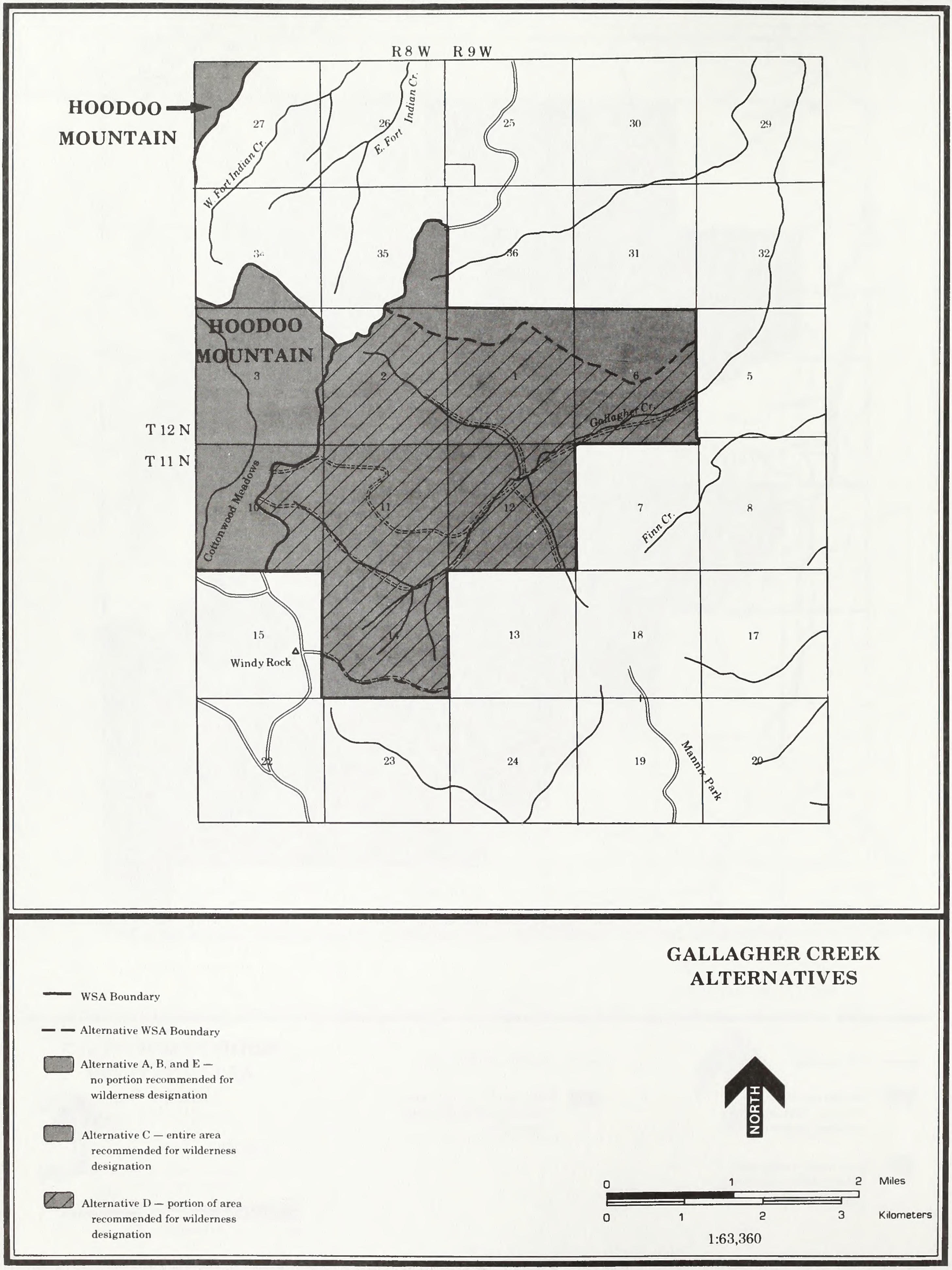
Under current management direction, 107,720 acres are available, on a restricted basis, for roaded and/or motorized recreation use. The restrictions generally take the form of seasonal closures and/or limiting use to specific roads and trails. About 9,440 ares in the Ram Mountain and Chamberlain Creek areas are roaded but not available for motorized recreation. The remaining 28,460 acres are available for roadless, nonmotorized recreation; most of this acreage is located within special management areas (MA 9) such as Wales Creek, Gallagher Creek, and Hoodoo Mountain.



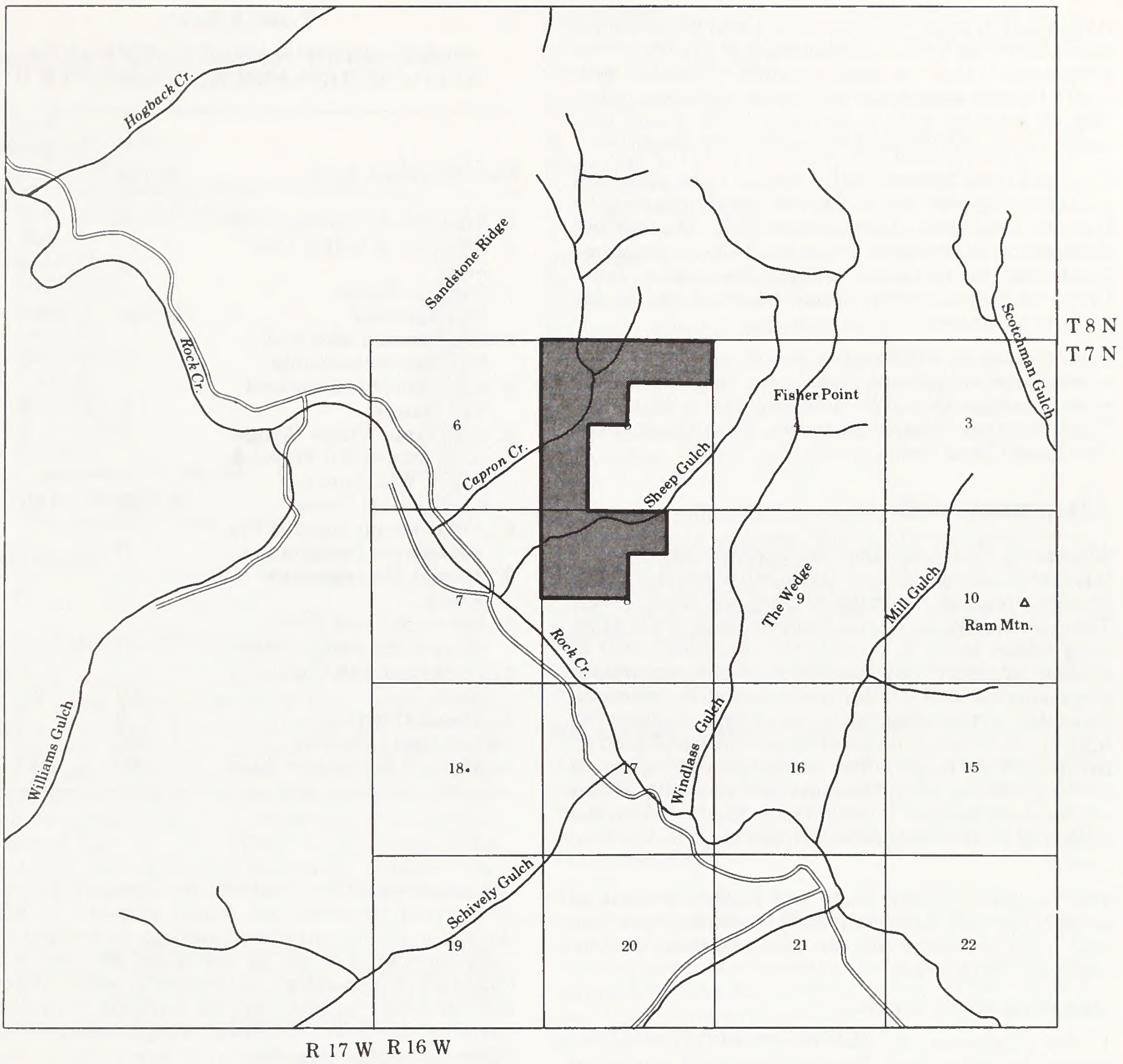
WALES CREEK ALTERNATIVES



HOODOO MOUNTAIN ALTERNATIVES



GALLAGHER CREEK ALTERNATIVES

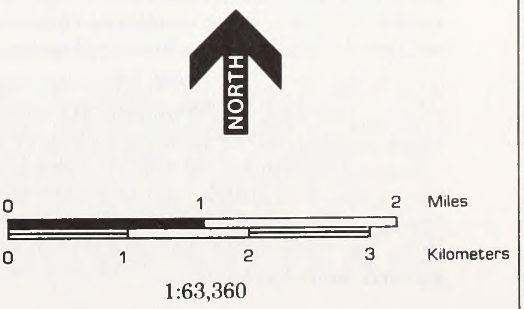


QUIGG WEST ALTERNATIVES

— WSA Boundary

▨ Alternatives C, D, and E — entire area recommended for wilderness designation

▨ Alternatives A and B — no portion recommended for wilderness designation



At present, a total of 40 developed and undeveloped recreation sites have been identified primarily for the protection of their recreation values. These are generally located near water and/or road closure gates. The 12 existing walk-in hunting areas would continue, and 4 additional areas would be pursued.

Garnet Ghost Town would continue to be managed cooperatively with the goal of fully implementing the Garnet Ghost Town Management Plan. The existing network of snowmobile trails would be maintained including the Garnet National Recreation Trail. Cross-country ski trails would be developed in the vicinity of Garnet.

Approximately 6,500 acres would continue to be managed with primary emphasis on maintaining scenic quality (MA 12) including lands along the Clark Fork and Blackfoot rivers, Flint Creek, Rock Creek, and Bear Gulch.

Alternative B

Alternative B emphasizes the availability of public land for the production of commodity resources such as timber, energy and minerals, and livestock forage. This alternative generally resolves each of the planning issues so as to provide the minimum level of protection required by law for soil, water, air, endangered species, and similar noncommodity resources. In so doing, this alternative generally indicates the highest sustainable levels of availability and production that could be permitted for commodity resources in the planning area. Management area allocations are summarized in Table 2-5 and illustrated on the Alternative B Management Areas map in the map packet.

The response to each issue and needed decision is determined largely by commodity resource potentials and legal requirements for the protection of noncommodity resources.

Renewable Resources

Under Alternative B, 112,000 acres of CFL would be available for harvest. This represents 99 percent of the total CFL in the resource area. About 1,660 acres of CFL would be harvested annually, yielding 8,560 mbf of timber per year. There would be 12.9 miles of road construction each year.

The only CFL that would be set aside from harvest is approximately 400 acres within active mineral production areas. Approximately 11,542 acres of CFL would be allocated to restrictive timber management, based on TPCC considerations intended to maintain soil productivity and watershed values.

The level of intensive timber management would remain low and would include 100 acres of tree planting and 40 acres of thinning annually. Prescribed fire would be prohibited on 4,800 acres adjacent to stream channels. The entire resource area would be open to the application of pesticides; Best Management Practices for chemicals handling (Appendix B) would govern such applications.

TABLE 2-5

SUMMARY OF MANAGEMENT AREA ALLOCATIONS FOR ALTERNATIVE B

Management Area	Acres	% of Resource Area
1. Riparian Protection Zone	0	0
2. Riparian Multiple Use Zone	0	0
3. General Forest Management	112,000	76.9
4. Elk Summer and Fall Habitat Components	0	0
5. Big Game Summer and Fall Range	0	0
6. Big Game Winter Range	0	0
7. Noncommercial Forest & TPCC Withdrawn Commercial Forest	22,000	15.1
8. Areas Recommended For Wilderness Designation	0	0
9. Special Management Areas	0	0
10.Developed and Undeveloped Recreation Sites	0	0
11.Historical and Cultural Sites	160	0.1
12.Visual Corridor	0	0
13.Nonforest Habitat	10,500	7.2
14.Mineral Production Area	1,000	0.7

All lands would be available for livestock grazing. Authorized livestock use would increase to 9,211 AUMs or 55 percent above current authorized use. Target stocking levels for individual allotments are indicated in Appendix I and generally reflect the current grazing capacity for all suitable rangeland, based on vegetative condition ratings and applicable SCS production estimates.

The ten existing AMP allotments would remain under intensive grazing management. In addition, fourteen other allotments would be placed under intensive management (see Table 2-6). Thus, a total of 95,532 acres would be affected by intensive grazing management. All new AMPs would emphasize the production and availability of forage for livestock use, particularly through the development of new water sources in areas currently lacking water, and through increased use of transitory forage resulting from timber harvest and thinning. New AMPs also would include provisions for the maintenance and improvement of resource conditions including riparian habitat, big game winter range, and forest regeneration. Range improvements and treatments that would be needed to fully implement existing and proposed AMPs include 104 miles of fence, 32 cattleguards, 69 spring developments, 4 miles of pipeline, and 500 acres of weed control.

TABLE 2-6

NEW AMP ALLOTMENTS PROPOSED UNDER ALTERNATIVE B

Allotment Number and Name		Acreage
7101	Bonita-Clinton-Potomac	12,143
7102	Weaver	4,410
7104	Lund #1	8,942
7105	McMahon	1,460
7106	Iverson	3,937
7108	Lund #2	3,518
7109	Semenza #1	5,908
7219	Mannix	2,000
7221	Murphy	1,103
7312	H. Luthje	2,866
7324	Collins	1,362
	Cottonwood Meadows	3,040
	Gallagher Creek	3,420
	Chamberlain Creek	5,760
Total Acreage		59,869

Special Attention Resources

All WSAs would be allocated to a variety of nonwilderness uses consistent with their commodity resource potential. Timber harvest, road construction, mineral entry, and mineral leasing generally would be permitted. Motorized vehicle use would be allowed on designated roads and trails. No WSAs would be recommended for wilderness designation, nor would there be any ACEC designations. WSA boundaries and alternative wilderness recommendations are displayed on the individual WSA Boundary maps.

All riparian habitat would be managed under Standard Operating Procedures designed to maintain site productivity, water quality, and streambank stability while emphasizing timber management.

About 22,000 acres of noncommercial forest and TPCC withdrawn CFL would be managed with emphasis on maintaining old-growth and mature forest habitats and unique features for wildlife use. Essentially all other wildlife habitat would be managed with emphasis on mitigating the effects of timber harvest, road construction, and other resource uses.

Nonrenewable Resources

Under Alternative B, 205,586 acres of federal minerals would be available for oil and gas leasing. Of this total, 205,426 acres would be leased with standard stipulations, and 160 acres associated with historic and cultural sites would not be available for surface occupancy.

Withdrawals would be managed as discussed under Alternative A. All existing powersite and power project withdrawals would remain in effect while all other withdrawals (R&PP and C&MU) would be recommended for revocation. Important historic and cultural sites would be recommended for withdrawal under Section 204 of FLPMA.

Land Ownership and Administration

A number of retention zones would be identified where public lands generally will be retained in public ownership (see Proposed Retention Zones map in map packet). About 126,872 acres of public land would be located within retention zones. All other public lands would be considered for either retention or disposal through transfer, exchange, or sale. The preferred method for disposal would be to exchange for lands within a retention zone.

About 145,500 acres would be available for further consideration for possible routing of major utility and transportation rights-of-way. Important historic and cultural sites (160 acres) would be identified as avoidance areas where rights-of-way would be discouraged.

The level of public and administrative access to public lands would increase. New public access would be sought for an additional 9,500 acres, and administrative access would be sought for an additional 8,150 acres. About 8,090 acres would remain legally inaccessible for either public or administrative purposes.

Withdrawals would be managed as discussed under Alternative A.

Recreation, Cultural, and Aesthetic Resources

All public land would be available, on a restricted basis, for roaded and/or motorized recreation use. Restrictions generally would take the form of seasonal closures and/or limitations of use to specific roads and trails.

The Garnet Ghost Town would continue to be managed cooperatively with the goal of fully implementing the Garnet Ghost Town Management Plan. The existing network of snowmobile trails would be maintained including the Garnet National Winter Recreation Trail. Cross-country ski trails would be developed in the vicinity of Garnet.

Efforts would be made to acquire additional public access to key tracts along the Blackfoot and Clark Fork rivers.

Alternative C

Alternative C emphasizes the maintenance or improvement of resource conditions and environmental values such as wildlife habitat and wilderness. This alternative generally resolves each of the planning issues so as to provide a high level of protection for environmental and amenity values; resource use and development would be permitted to the extent compatible with the environmental protection emphasis. This alternative also emphasizes the availability of public land for a variety of nonmotorized recreation uses. Management area allocations are summarized in Table 2-7 and illustrated on the Alternative C Management Areas map in the map packet.

TABLE 2-7

SUMMARY OF MANAGEMENT AREA ALLOCATIONS FOR ALTERNATIVE C

Management Area	Acres	% of Resource Area[1]
1. Riparian Protection Zone	1,000	0.7
2. Riparian Multiple Use Zone	3,300	2.3
3. General Forest Management	32,000	22.0
4. Elk Summer and Fall Habitat Components	8,650	5.9
5. Big Game Summer and Fall Range	27,350	18.8
6. Big Game Winter Range	25,200	17.3
7. Noncommercial Forest & TPCC Withdrawn Commercial Forest	5,300	3.6
8. Areas Recommended For Wilderness Designation	27,737	19.0
9. Special Management Areas	2,400	1.6
10.Developed and Undeveloped Recreation Sites	61	0.1
11.Historical and Cultural Sites	160	0.1
12.Visual Corridor	10,200	7.0
13.Nonforest Habitat	1,300	0.9
14.Mineral Production Area	1,000	0.7

[1] Percentages do not total 100 due to rounding.

The response to each issue and needed decision is determined largely by the condition and potential of amenity resources and the ability to produce commodity resources while attaining environmental protection objectives.

Renewable Resources

Under Alternative C, 87,930 acres of CFL would be available for harvest. This represents 78 percent of the total CFL in the resource area. About 1,120 acres of CFL would be harvested annually, yielding 5,960 mbf of timber per year. There would be 9.0 miles of roads constructed each year.

Most of the CFL acreage that would be set aside from harvest is located within the Wales Creek, Yourname Creek, Gallagher Creek, and Hoodoo Mountain areas where 22,000 acres of CFL would be unavailable for harvest because of wilderness designations. About 2,780 acres of CFL would be set aside or allocated to restrictive timber management to protect or maintain riparian and watershed values elsewhere. An additional 2,000 acres of CFL would be set aside within areas identified for special management, and 400 acres would be set aside within mineral production areas. About 46,700 acres of CFL would be allocated to restrictive timber management primarily to protect or enhance important wildlife habitat values.

The level of intensive timber management would remain the same as Alternative A. Prescribed fire would be prohibited on 5,020 acres primarily within areas recommended for developed and potential recreation sites, and adjacent to stream channels. Pesticide application would be prohibited on 32,000 acres within recommended wilderness areas and riparian areas.

A total of 38,130 acres would not be leased for livestock grazing. These include 27,200 acres that are currently closed and additional acreages in the Elk Creek, Marcum, Mulkey, and Rattler areas. A total of 107,530 acres would remain available for livestock use. The total authorized livestock use would decrease to 3,595 AUMs or 39 percent below current licensed use.

Target stocking levels for individual allotments are indicated in Appendix I. For those allotments to be adjusted downward, target stocking levels generally are based on the current grazing capacity of all suitable rangeland in poor or fair condition. In some cases where it would be practical to exclude livestock use from poor and fair condition rangeland by fencing, the target stocking level is based on the current grazing capacity of all suitable rangeland in good or excellent condition.

The ten existing AMP allotments would remain under intensive grazing management. In addition, eighteen other allotments would be placed under intensive management (see Table 2-8). Thus, a total of 85,026 acres would be affected by intensive grazing management. All new AMPs would emphasize the maintenance and improvement of resource conditions including riparian habitat, watershed, big game winter range, and forest regeneration. Management changes would include the implementation of grazing systems and an increase in resource monitoring. Range improvements that would be needed to fully implement existing and proposed AMPs include 82 miles of fence and 22 cattleguards.

Special Attention Resources

All WSAs would be recommended for wilderness designation. Timber harvest, road construction, mineral entry, mineral leasing, and motorized vehicle use would be prohibited. A wilderness management plan would be prepared for each area in accordance with BLM wilderness management policy. WSA boundaries and alternative wilderness recommendations are displayed on individual WSA Boundary maps.

Twenty acres in Rattler Gulch would be designated as an ACEC for its educational value and withdrawn from mineral entry as a means of protecting a unique limestone feature from possible mineral development.

A total of 4,300 acres would be managed primarily to maintain or enhance a variety of riparian habitat values. All other riparian habitat would be managed

TABLE 2-8

NEW AMP ALLOTMENTS PROPOSED UNDER ALTERNATIVES C AND D

Allotment Number and Name		Acreage
7101	Bonita-Clinton-Potomac	12,143
7102	Weaver	4,410
7104	Lund #1	8,942
7105	McMahon	1,460
7106	Iverson	3,937
7108	Lund #2	3,518
7109	Semenza #1	5,908
7205	Benson Brothers	360
7219	Mannix	2,000
7221	Murphy	1,103
7222	Semenza #2	205
7301	Bauer	279
7302	Bissonette	175
7308	Jensen #1	160
7312	H. Luthje	2,866
7317	X Diamond Bar	255
7318	Radtke #2	280
7324	Collins	1,362
Total Acreage		49,363

under Standard Operating Procedures designed to maintain site productivity, water quality, and streambank stability.

A total of 61,200 acres would be managed primarily to maintain or improve specific types of big game habitat including elk summer and fall habitat components, big game summer and fall range, and big game winter range. These areas are in addition to the 30,137 acres allocated to wilderness and other special management where management emphasis would include the protection and enhancement of wildlife habitat values. An additional 5,300 acres of noncommercial forest and TPCC withdrawn commercial forest land would be managed with emphasis on maintaining old-growth and mature forest habitats and unique features for wildlife use.

Nonrenewable Resources

Under Alternative C, 177,849 acres of federal minerals would be available for oil and gas leasing. Of this total, 66,050 acres would be leased with special stipulations, and 2,560 acres would not be available for surface occupancy. All areas recommended for wilderness designation would be closed to oil and gas leasing pending congressional action. Areas affected by seasonal restrictions and stipulations prohibiting surface occupancy consist largely of existing and potential road closure areas where wildlife habitat values are important.

All existing powersite and power project withdrawals, totalling 1,300 acres, would remain in effect under this alternative. All other withdrawals would be recommended for revocation. Important cultural and historic sites, 160 acres, and 20 acres to be designated as an ACEC would be recommended for withdrawal under Section 204 of FLPMA. All areas recommended for wilderness designation would be withdrawn under Section 4(c)(3) of the Wilderness Act.

Land Ownership and Administration

A number of retention zones would be identified where public lands generally will be retained in public ownership (see Proposed Retention Zones map in the map packet). About 126,872 acres would be located within retention zones. All other public lands would be considered for either retention or disposal through transfer, exchange, or sale. The preferred method for disposal would be to exchange for lands within a retention zone.

About 105,650 acres would be available for further consideration for possible routing of major utility and transportation rights-of-way. About 12,253 acres associated with riparian areas; important recreation, historic, and cultural sites; and other special management areas would be identified as avoidance areas where rights-of-way would be discouraged. All areas recommended for wilderness or ACEC designation would be excluded from corridor development.

The level of public and administrative access to public lands would increase. New public access would be sought for an additional 9,500 acres, and administrative access would be sought for an additional 8,150 acres. About 8,090 acres would remain legally inaccessible for either public or administrative purposes.

Withdrawals would be managed as discussed under Alternative A.

Recreation, Cultural, and Aesthetic Resources

Under Alternative C, 106,022 acres would be available, on a restricted basis, for roaded and/or motorized recreation use. The restrictions generally would take the form of seasonal closures and/or limiting use to specific roads and trails. About 9,440 acres in the Ram Mountain and Chamberlain Creek areas are roaded but would not be available for motorized recreation. The remaining 30,137 acres would be available for roadless, nonmotorized recreation; most of this acreage is located within areas recommended for wilderness designation and other areas requiring special management.

A total of 61 developed and undeveloped sites would be identified primarily for the protection of their recreational values. These are generally located near water and/or road closure gates. The 12 existing walk-in hunting areas would continue, and an effort would be made to establish four additional areas.

The Garnet Ghost Town would continue to be managed cooperatively with the goal of fully implementing the Garnet Ghost Town Management Plan. The existing network of snowmobile trails would be maintained including the Garnet National Winter Recreation Trail. Cross-country ski trails would be developed in the vicinity of Garnet.

Efforts would be made to acquire additional public access to key tracts of public land along the Blackfoot and Clark Fork rivers.

A total of 10,200 acres would be managed with primary emphasis on maintaining scenic quality (MA 12) including lands along the Clark Fork and Blackfoot rivers, Flint Creek, Rock Creek, and Bear Gulch.

Alternative D

Alternative D, like Alternative C, emphasizes the maintenance or improvement of resource conditions and environmental values. However, Alternative D differs from Alternative C in that only portions of three WSAs and all of the fourth WSA would be recommended for wilderness designation. Wilderness recommendations would be designed to protect the portion of each WSA with the highest wilderness values and to minimize conflicts with nonwilderness uses and opportunities. Wilderness boundaries also would be designed to enhance the manageability of designated areas and adjoining lands. Management area allocations are summarized in Table 2-9 and illustrated on the Alternative D WSA maps and the Alternative C Management Areas map in the map packet.

The response to each issue and needed decision is identical to those discussed for Alternative C except for those portions of three WSAs that are not being recommended for wilderness designation.

Renewable Resources

Under Alternative D, 101,130 acres of CFL would be available for harvest. This represents 90 percent of the total CFL. A total of 1,313 acres of CFL would be harvested annually, yielding 6,780 mbf of timber per year. There would be 10.2 miles of road construction annually.

Most of the CFL acreage that would be set aside from harvest is located within the Wales Creek, Gallagher Creek, and Cottonwood Meadows areas where 10,390 acres of CFL would be unavailable for harvest because of wilderness designations. A total of 3,580 acres of CFL would be set aside or allocated to restrictive timber management to protect or maintain riparian and watershed values elsewhere in the resource area. An additional 400 acres of CFL would be set aside within areas identified for special management, and 400 acres would be set aside within mineral production areas. A total of 58,350 acres of CFL would be allocated to restrictive timber management primarily to protect or enhance important wildlife habitat values.

The level of intensive timber management would remain low and would include 100 acres of tree planting and 40 acres of thinning annually. Prescribed fire would be prohibited on 5,020 acres of public land, primarily within areas recommended for developed and potential recreation sites, and adjacent to stream channels. Pesticide application would be prohibited on 19,450 acres within recommended wilderness areas and riparian areas.

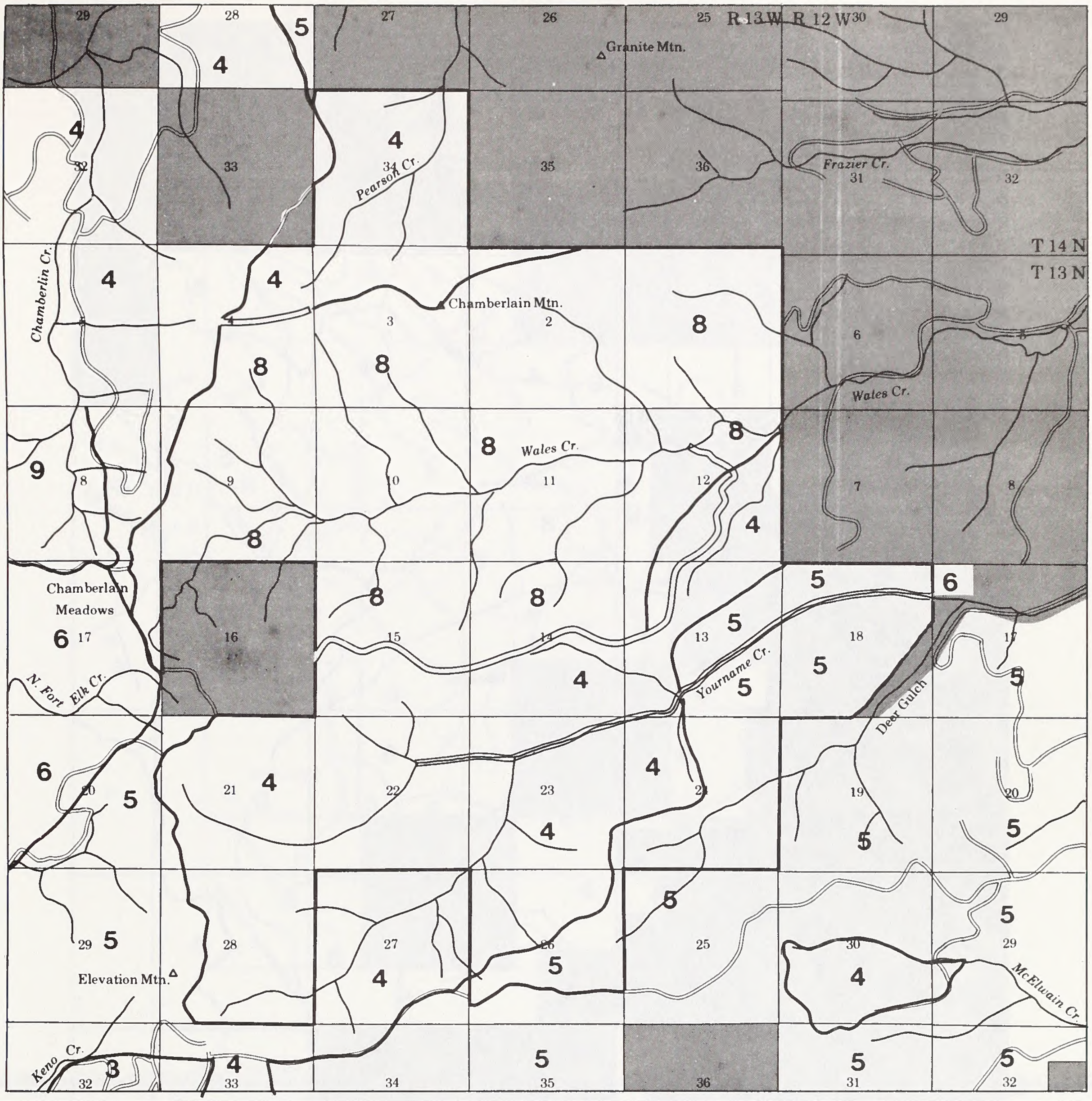
TABLE 2-9
SUMMARY OF MANAGEMENT AREA ALLOCATIONS FOR ALTERNATIVE D

Management Area	Acres	% of Resource Area
1. Riparian Protection Zone	1,000	0.7
2. Riparian Multiple Use Zone	4,100	2.8
3. General Forest Management	32,750	22.5
4. Elk Summer and Fall Habitat Components	10,000	6.9
5. Big Game Summer and Fall Range	39,500	27.1
6. Big Game Winter Range	25,500	17.5
7. Noncommercial Forest & TPCC Withdrawn Commercial Forest	5,300	3.6
8. Areas Recommended For Wilderness Designation	14,350	9.9
9. Special Management Areas	440	0.3
10.Developed and Undeveloped Recreation Sites	61	0.1
11.Historical and Cultural Sites	160	0.1
12.Visual Corridor	10,200	7.0
13.Nonforest Habitat	1,300	0.9
14.Mineral Production Area	1,000	0.7

A total of 38,130 acres would not be leased for livestock grazing. These include 27,200 acres currently closed and additional acreages in the Elk Creek, Marcum, Mulkey, and Rattler areas. A total of 107,530 acres would remain available for livestock use. The total authorized livestock use would decrease to 3,595 AUMs or 39 percent below current licensed use.

Target stocking levels for individual allotments are indicated in Appendix I. For those allotments to be adjusted downward, target stocking levels generally are based on the current grazing capacity of rangeland in poor or fair condition. In some cases where it would be practical to exclude livestock use by fencing rangeland in fair or poor vegetative condition, the target stocking level is based on the current grazing capacity of rangeland in good or excellent condition.

The ten existing AMP allotments would remain under intensive grazing management. In addition, eighteen other allotments would be placed under intensive management (see Table 2-8). Thus, a total of 85,026 acres would be affected by intensive grazing management. All new AMPs would emphasize the maintenance and improvement of resource conditions including riparian habitat, watershed, big game winter range, and forest regeneration. Management changes would include the implementation



1	Riparian Protection Zone
2	Riparian Multiple Use Zone
3	General Forest Management
4	Elk Summer/Fall Habitat Components
5	Big Game Summer/Fall Range
6	Big Game Winter Rang
7	Non-Commercial Forest and TPCC Withdrawn Commercial Forest
8	Areas Recommended for Wilderness Designation
9	Special Management Areas
10	Developed and Undeveloped Recreation Sites
11	Historic & Cultural Sites
12	Visual Corridor
13	Non-Forest Habitat

WALES CREEK MANAGEMENT AREAS ALTERNATIVE D

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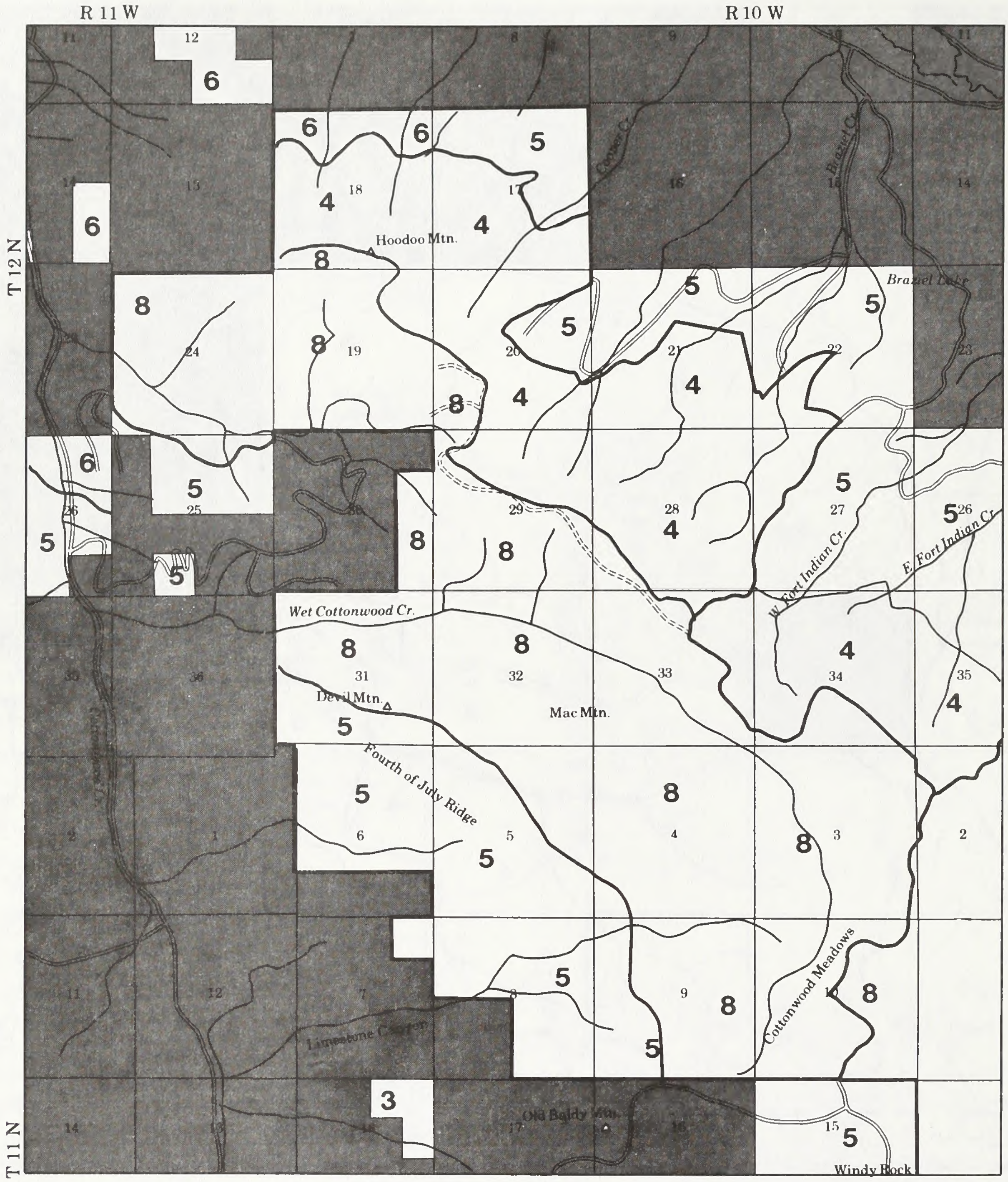


1 Riparian Protection Zone

2 Riparian Multiple Use Zone

3 General Forest Management

4 Elk Summer/Fall Habitat Components

5 Big Game Summer/Fall Range

6 Big Game Winter Range

7 Non-Commercial Forest and TPCC Withdrawn Commercial Forest

8 Areas Recommended for Wilderness Designation

9 Special Management Areas

10 Developed and Undeveloped Recreation Sites

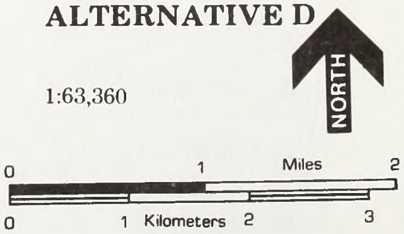
11 Historic & Cultural Sites

12 Visual Corridor

13 Non-Forest Habitat

14 Mineral Production Area

HOODOO MOUNTAIN MANAGEMENT AREAS ALTERNATIVE D



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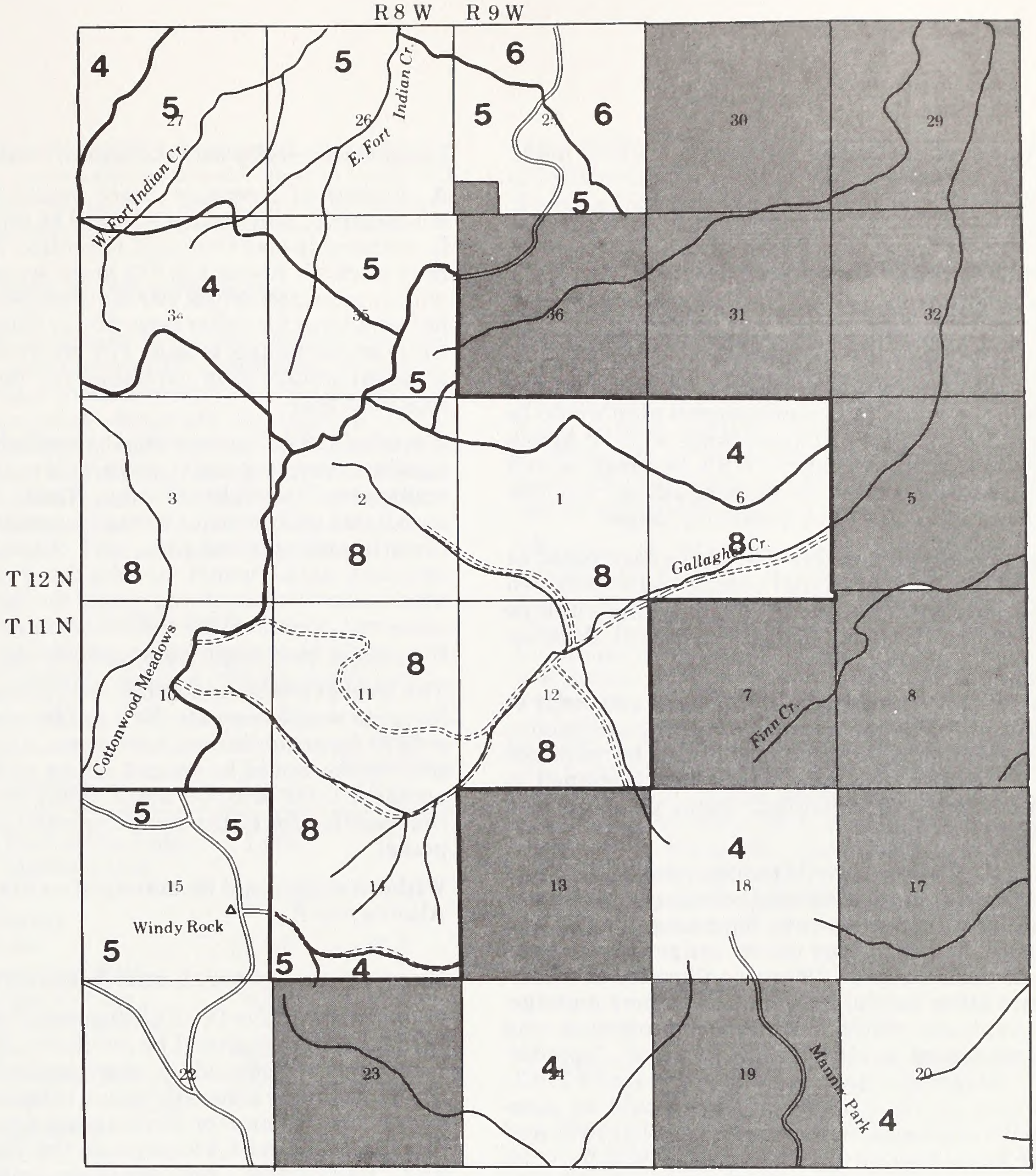

GALLAGHER CREEK MANAGEMENT AREAS ALTERNATIVE D

1	Riparian Protection Zone	8	Areas Recommended for Wilderness Designation
2	Riparian Multiple Use Zone	9	Special Management Areas
3	General Forest Management	10	Developed and Undeveloped Recreation Sites
4	Elk Summer/Fall Habitat Components	11	Historic & Cultural Sites
5	Big Game Summer/Fall Range	12	Visual Corridor
6	Big Game Winter Range	13	Non-Forest Habitat
7	Non-Commercial Forest and TPCC Withdrawn Commercial Forest		

NORTH

0 1 2 Miles

0 1 2 3 Kilometers

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of grazing systems and an increase in resource monitoring. Range improvements that would be needed to fully implement existing and proposed AMPs include 82 miles of fence and 22 cattleguards.

Special Attention Resources

Under Alternative D, 14,350 acres in four WSAs would be recommended for wilderness designation. Timber harvest, road construction, mineral entry, mineral leasing, and motorized vehicle use would be prohibited. A wilderness management plan would be prepared for each area in accordance with BLM wilderness management policy. WSA boundaries and alternative wilderness recommendations are displayed on individual WSA Boundary maps.

Twenty acres in Rattler Gulch would be designated as an ACEC for its educational values and withdrawn from mineral entry as a means of protecting a unique limestone feature from possible mineral development.

A total of 5,100 acres would be managed primarily to maintain or enhance a variety of riparian habitat values. All other riparian habitat would be managed under Standard Operating Procedures designed to maintain site productivity, water quality, and streambank stability.

A total of 75,000 acres would be managed primarily to emphasize big game habitat including elk summer and fall habitat components, big game summer and fall range, and big game winter range. These areas are in addition to the 14,790 acres allocated to wilderness and other special management where management emphasis would include the protection and enhancement of wildlife habitat values. An additional 5,300 acres of noncommercial forest and TPCC withdrawn commercial forest land would be managed with emphasis on maintaining old-growth and mature forest habitats and unique features for wildlife use.

Nonrenewable Resources

Under Alternative D, 191,236 acres of federal minerals would be available for oil and gas leasing. Of this total, 78,550 acres would be leased with special stipulations, and 600 acres would not be available for surface occupancy. All areas recommended for wilderness designation would be closed to oil and gas leasing pending Congressional action. Areas affected by seasonal restrictions and stipulations prohibiting surface occupancy consist largely of existing and potential road closure areas where wildlife habitat values are important.

All existing powersite and power project withdrawals, totalling 1,300 acres, would remain in effect under this alternative. All other withdrawals would be recommended for revocation. Important cultural and historic sites (160 acres) and 20 acres to be designated as an ACEC would be recommended for withdrawal under Section 204 of FLPMA. All areas recommended for wilderness designation would be withdrawn under Section 4(c)(3) of the Wilderness Act.

Land Ownership and Administration

A number of retention zones would be identified where public lands generally will be retained in public ownership (see Proposed Retention Zones map in map packet). About 126,872 acres would be located within retention zones. All other public lands would be considered for either retention or disposal through transfer, exchange, or sale. The preferred method for disposal would be to exchange for lands within a retention zone.

A total of 119,650 acres would be available for further consideration for possible routing of major utility and transportation rights-of-way. About 17,640 acres associated with riparian areas, important recreation, historic and cultural sites, and other special management areas would be identified as avoidance areas where rights-of-way would be discouraged. All areas recommended for wilderness or ACEC designation would be excluded from corridor development.

The level of public and administrative access to public lands would increase. New public access would be sought for an additional 9,500 acres, and administrative access would be sought for an additional 8,150 acres. A total of 8,090 acres would remain legally inaccessible for either public or administrative purposes.

Withdrawals would be managed as discussed under Alternative A.

Recreation, Cultural, and Aesthetic Resources

Under Alternative D, 121,369 acres of public land in the resource area would be available, on a restricted basis, for roaded and/or motorized recreation use. The restrictions generally would take the form of seasonal closures and/or limiting use to specific roads and trails. About 9,440 acres in the Ram Mountain and Chamberlain Creek areas are roaded but would not be available for motorized recreation. The remaining 14,790 acres would be available for roadless, nonmotorized recreation; most of this acreage is located within areas recommended for wilderness designation and other areas requiring special management.

A total of 61 developed and undeveloped recreation sites would be identified primarily for the protection of their recreational values. These are generally located near water and/or road closure gates. The 12 existing walk-in hunting areas would continue, and an effort would be made to establish four additional areas.

The Garnet Ghost Town would continue to be managed cooperatively with the goal of fully implementing the Garnet Ghost Town Management Plan. The existing network of snowmobile trails would be maintained including the Garnet National Winter Recreation Trail. Cross-country ski trails would be developed in the vicinity of Garnet.

Efforts would be made to acquire additional public access to key tracts of public land along the Blackfoot and Clark Fork rivers.

About 10,200 acres would be managed with primary emphasis on maintaining scenic quality (MA 12) including lands along the Clark Fork and Blackfoot rivers, Flint Creek, Rock Creek, and Bear Gulch.

Alternative E (Preferred)

Alternative E incorporates portions of the other four alternatives and generally represents a middle-ground approach to issue resolution. This alternative balances competing demands by making public lands available for a wide variety of resource uses while protecting and enhancing important and sensitive environmental values. Management area allocations are summarized in Table 2-10 and illustrated on the Alternative E Management Areas map in the map packet.

TABLE 2-10

SUMMARY OF MANAGEMENT AREA ALLOCATIONS FOR ALTERNATIVE E

Management Area	Acres	% of Resource Area
1. Riparian Protection Zone	1,000	0.7
2. Riparian Multiple Use Zone	2,500	1.7
3. General Forest Management	36,900	25.3
4. Elk Summer and Fall Habitat Components	8,300	5.7
5. Big Game Summer and Fall Range	48,850	33.5
6. Big Game Winter Range	23,300	16.0
7. Noncommercial Forest & TPCC Withdrawn Commercial Forest	5,800	4.0
8. Areas Recommended For Wilderness Designation	520	0.4
9. Special Management Areas	8,140	5.6
10. Developed and Undeveloped Recreation Sites	41	0.1
11. Historical and Cultural Sites	160	0.1
12. Visual Corridor	7,850	5.4
13. Nonforest Habitat	1,300	0.9
14. Mineral Production Area	1,000	0.7

The response to each issue and needed decision is based on the full range of resource potentials and conditions as well as legal and policy requirements and social and economic considerations.

Renewable Resources

Under Alternative E, 105,020 acres of CFL would be available for harvest. This represents 93 percent of the total CFL. A total of 1,352 acres of CFL would be harvested annually, yielding 7,030 mbf of timber per year. There would be 10.5 miles of road construction each year.

Most of the CFL acreage that would be set aside from harvest is located within the Wales Creek, upper Gallagher Creek, and Cottonwood Meadows areas where 6,620 acres of CFL would be unavailable for harvest because of special management considerations. A total of 2,080 acres of CFL would be set aside or allocated to restrictive timber management to protect or maintain riparian and watershed values elsewhere in the resource area. An additional 280 acres of CFL would be set aside within one area recommended for wilderness designation, and 400 acres would be set aside within mineral production areas. A total of 62,700 acres of CFL would be allocated to restrictive timber management primarily to protect or enhance important wildlife habitat values.

The level of intensive timber management would remain the same as Alternative A. Prescribed fire would be prohibited on 5,020 acres primarily within developed and potential recreation sites and adjacent to stream channels. Pesticide application would be prohibited on 4,000 acres within the recommended wilderness area and riparian areas.

A total of 33,770 acres would not be leased for livestock grazing (see Table 2-11). These include 27,200 acres currently closed, and additional acreage in the Elk Creek, Pearson Creek, and Quigg Peak areas. A total of 111,890 acres would remain available for livestock use. The total authorized livestock use would increase to 6,245 AUMs or 5 percent above current licensed use.

TABLE 2-11

TRACTS TO REMAIN UNLEASED FOR LIVESTOCK GRAZING

Name	Acreage
Chamberlain Creek	5,760
Wales Creek	7,820
Gallagher Creek	3,420
Cottonwood Creek	3,040
Yourname Creek	7,160
Quigg Peak	520
Elk Creek East	4,480
Pearson Creek	1,570
Total	33,770

Target stocking levels for individual allotments are indicated in Appendix I. No allotments would be adjusted downward. Target stocking levels for allotments to be adjusted upward would be based on current grazing capacity estimates, considering vegetative condition ratings and applicable SCS production estimates.

Nine of the ten existing AMP allotments would remain under intensive grazing management. One existing AMP allotment, Devil Mountain (7201), would be placed under custodial management since the allotment boundaries have been modified to exclude livestock use from much of the original AMP area, and resource conditions are satisfactory on the remaining grazed acreage.

In addition, 11 other allotments would be placed under intensive management (see Table 2-12). Thus, a total of 81,294 acres would be affected by intensive grazing management. All new AMPs would be based on allotment specific multiple use management objectives addressing identified resource opportunities and conflicts. Future management actions would be designed to meet these objectives. Management opportunities and objectives for I allotments and implementation priorities are identified in Appendix M.

TABLE 2-12

NEW AMP ALLOTMENTS PROPOSED UNDER ALTERNATIVE E

Allotment Number and Name	Acreage
7101 Bonita-Clinton-Potomac	12,143
7102 Weaver	4,410
7104 Lund #1	8,942
7105 McMahon	1,460
7106 Iverson	3,937
7108 Lund #2	3,518
7109 Semenza #1	5,908
7219 Mannix	2,000
7221 Murphy	1,103
7312 H. Luthje	2,866
7324 Collins	1,362
Total Acreage	47,649

Management changes for proposed AMP allotments would include the implementation of grazing systems and an increase in resource monitoring. Range improvements and treatments that would be needed to fully implement existing and proposed AMP allotments include 75 miles of fence, 25 cattleguards, 38 spring developments, 4 miles of pipeline, and 300 acres of weed control.

Special Attention Resources

The 520-acre Quigg West WSA would be recommended for wilderness designation contingent on the Forest Service wilderness recommendation for Quigg. Timber harvest, road construction, mineral entry, mineral leasing, and motorized vehicle use would be prohibited. A wilderness management plan would be prepared in accordance with BLM wilderness management policy. WSA boundaries and alternative wilderness recommendations are displayed on individual WSA Boundary maps.

Twenty acres in Rattler Gulch would be designated as an ACEC for its educational value and withdrawn from mineral entry as a means of protecting a unique limestone feature from possible mineral development.

A total of 3,500 acres would be managed primarily to maintain or enhance a variety of riparian habitat values. All other riparian habitat would be managed under Standard Operating Procedures designed to maintain site productivity, water quality, and streambank stability.

A total of 80,450 acres would be managed primarily to emphasize big game habitat including elk summer and fall habitat components, big game summer and fall range, and big game winter range while providing for timber harvest. These areas are in addition to the 8,660 acres allocated to wilderness and other special management where management emphasis would include the protection and enhancement of wildlife habitat values. An additional 5,800 acres of noncommercial forest and TPCC withdrawn commercial forest land would be managed with emphasis on maintaining old-growth and mature forest habitats and unique features for wildlife use.

Nonrenewable Resources

Under Alternative E, 205,066 acres of federal minerals in the resource area would be available for oil and gas leasing. Of this total, 84,076 acres would be leased with special stipulations, and 8,180 acres would not be available for surface occupancy. All land recommended for wilderness designation would be closed to oil and gas leasing pending congressional action. Areas affected by seasonal restriction and stipulations prohibiting surface occupancy consist largely of special management areas and existing and potential road closure areas where wildlife habitat values are important.

All existing powersite and power project withdrawals, totalling 1,300 acres, would remain in effect under this alternative. All other withdrawals would be recommended for revocation. Important cultural and historic sites, 160 acres, and 20 acres proposed for ACEC designation would be recommended for withdrawal under Section 204 of FLPMA. All land recommended for wilderness designation would be withdrawn under Section 4(c)(3) of the Wilderness Act.

Land Ownership and Administration

A number of retention zones would be identified, where public lands generally will be retained in public ownership (see Proposed Retention Zones map in map packet). About 126,872 acres would be located within retention zones. All other public lands would be considered for either retention or disposal through transfer, exchange, or sale. The preferred method for disposal would be to exchange for lands within a retention zone.

A total of 127,500 acres would be available for further consideration and possible routing of major utility and transportation rights-of-way. About 17,620 acres associated with riparian areas, important recreation, historic and cultural sites, and other special management areas would be identified as avoidance areas where rights-of-way would be discouraged. All land recommended for wilderness and ACEC designation would be excluded from corridor development.

The level of public and administrative access to public lands would increase. New public access would be sought for an additional 9,500 acres, and administrative access would be sought for an additional 8,150 acres. A total of 8,090 acres would remain legally inaccessible for either public or administrative purposes.

Withdrawals would be managed as discussed under Alternative A.

Recreation, Cultural, and Aesthetic Resources

Under Alternative E, 131,919 acres would be available, on a restricted basis, for roaded and/or motorized recreation. The restrictions generally would take the form of seasonal closures and/or limiting use to specific roads and trails. A total of 5,040 acres in the Ram Mountain and Karshaw Mountain areas are roaded but would not be available for motorized recreation. The remaining 8,660 acres would be available for roadless, nonmotorized recreation; most of this acreage is located within areas recommended for wilderness designation or requiring other forms of special management.

A total of 41 developed and undeveloped recreation sites would be identified primarily for the protection of their recreation values. These are generally located near water and/or road closure gates. The 12 existing walk-in hunting areas would continue, and an effort would be made to establish four additional areas.

Garnet Ghost Town would continue to be managed cooperatively with the goal of fully implementing the Garnet Ghost Town Management Plan. The existing network of snowmobile trails would be maintained including the Garnet National Winter Recreation Trail. Cross-country ski trails would be developed in the vicinity of Garnet.

Efforts would be made to acquire additional public access to key tracts along the Blackfoot and Clark Fork rivers.

A total of 7,850 acres would be managed with primary emphasis on maintaining scenic quality (MA 12) including lands along the Clark Fork and Blackfoot rivers, Flint Creek, and Rock Creek.

COMPARISON OF ALTERNATIVES

Tables 2-13 and 2-14 summarize range improvement and treatment costs, and projected changes in vegetative condition and classification for each alternative.

Tables 2-15 and 2-16 summarize the management area allocations and resource allocations and outputs that would occur under each alternative. Table 2-17 summarizes the environmental consequences expected under each alternative. For additional information regarding the environmental effects of each alternative, refer to the Environmental Consequences chapter.

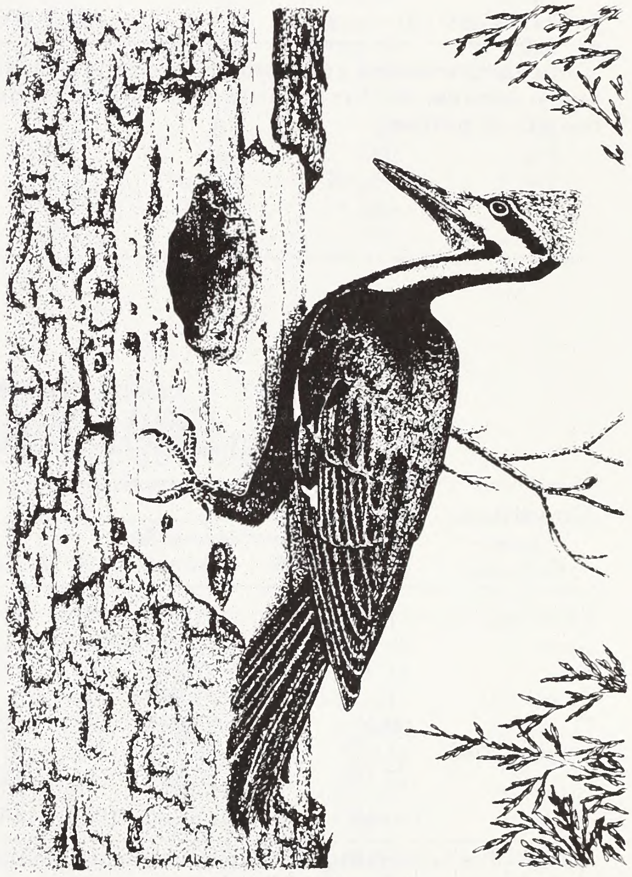


TABLE 2-13

COMPARISON OF ALTERNATIVES: RANGE IMPROVEMENTS, TREATMENTS, AND COSTS

Improvement/Treatment	Alternatives				
	A	B	C	D	E
Fence (mi)	22	104	82	82	75
Cattleguards (no)	7	32	22	22	25
Springs (no)	25	69	0	0	38
Pipeline (mi)	2	4	0	0	4
Weed Control (ac)	200	500	0	0	300
Total Installation Cost for all Improvements	$217,400	$829,000	$465,000	$465,000	$585,600
20-yr Maintenance and Replacement Cost	$363,600	$548,660	$448,080	$448,080	$466,710
Total Cost[1] (20 years)	$581,000	$1,377,660	$913,080	$913,080	$1,052,310

[1] Range improvement and maintenance costs typically are shared by the BLM, the affected grazing permittees, and in some cases other agencies or landowners. The cost figures shown above represent a total estimate for all costs to all parties.

TABLE 2-14

COMPARISON OF ALTERNATIVES: PROJECTED LONG-TERM CHANGES IN VEGETATIVE CONDITION/CLASSIFICATION

Condition/ Classification	Present Situation		Alternatives									
			A		B		C		D		E	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Excellent	11,974	8	11,974	8	11,974	8	23,934	16	23,934	16	11,974	8
Good	25,005	17	31,525	22	36,704	25	23,696	16	23,696	16	39,057	27
Fair	14,325	10	7,918	5	3,923	3	4,989	3	4,989	3	1,588	1
Poor	1,336	1	1,223	1	39	T	21	T	21	T	21	T
Waste	69,802	48	29,086	20	19,382	13	14,325	10	14,325	10	31,796	22
Unclassified	11,068	8	28,134	19	31,338	22	46,195	32	46,195	32	27,974	19
Logged	12,150	8	35,800	25	42,300	29	32,500	22	32,500	22	33,250	23
Total	145,660	100	145,660	100	145,660	100*	145,600	100	145,600	100	145,600	100

*Note—due to rounding off this column may not total 100 percent.

TABLE 2-15

COMPARISON OF ALTERNATIVES: MANAGEMENT AREA ALLOCATIONS

(in acres)

			Alternatives		
Management Area	**A (No Action)**	**B**	**C**	**D**	**E (Preferred)**
Riparian Protection Zone	760	0	1,000	1,000	1,000
Riparian Multiple Use Zone	640	0	3,300	4,100	2,500
General Forest Management	63,460	112,000	32,000	32,750	36,900
Elk Summer and Fall Habitat Components	640	0	8,650	10,000	8,300
Big Game Summer and Fall Range	11,800	0	27,350	39,500	48,850
Big Game Winter Range	19,500	0	25,200	25,500	23,300
Noncommercial Forest and TPCC Withdrawn Commercial Forest	9,500	22,000	5,300	5,300	5,800
Areas Recommended for Wilderness Designation	0	0	27,737	14,350	520
Special Management Areas	28,457	0	2,400	440	8,140
Developed and Undeveloped Recreation Sites	40	0	61	61	41
Historical and Cultural Sites	160	160	160	160	160
Visual Corridor	6,500	0	10,200	10,200	7,850
Nonforest Habitat	3,200	10,500	1,300	1,300	1,300
Mineral Production Area	1,000	1,000	1,000	1,000	1,000

TABLE 2-16

COMPARISON OF ALTERNATIVES: RESOURCE ALLOCATIONS AND OUTPUTS

(in acres unless otherwise indicated)

			Alternatives		
Allocation/Output	**A (No Action)**	**B**	**C**	**D**	**E (Preferred)**
		RENEWABLE RESOURCES			
Total CFL Available for Harvest	87,920	112,000	87,930	101,130	105,020
CFL Restricted[1]	22,460	0	49,430	61,880	64,720
Other Restricted[2]	8,518	11,542	8,518	8,518	8,518
CFL Nonproblem	56,942	100,528	29,972	30,732	31,980
Total CFL Set Aside	24,540	400	24,540	11,330	7,440
Estimated Allowable Harvest (mbf/yr)	6,370	8,560	5,960	6,780	7,030
New Roads (mi/yr)	9.6	12.9	9.0	10.2	10.5
Total P.L. Available for Livestock Grazing	118,460	145,660	107,530	107,530	111,890
P.L. Under Intensive Grazing Management	35,663	95,532	85,026	85,026	81,294
AMP Allotments (no)	10	24	28	28	20
Total P.L. Excluded From Livestock Grazing	27,200	0	38,130	38,130	33,770
Livestock Forage Target (AUMs)— short-term	5,930	9,211	3,595	3,595	6,245
— long-term	6,981	11,662	4,232	4,232	8,013

Allocation/Output	Alternatives A (No Action)	B	C	D	E (Preferred)
SPECIAL ATTENTION RESOURCES					
Total P.L. Recommended for Wilderness Designation	0	0	27,737	14,350	520
Total P.L. Designated as ACEC	0	0	20	20	20
Total P.L. with Wildlife Habitat Emphasis (wildlife goals) ac.	74,500	32,500	102,237	101,490	99,710
Riparian Habitat with Wildlife and Watershed Mgmt Emphasis (MA 1,2)	1,400	0	4,300	5,100	3,517
Riparian Habitat with Watershed Mgmt Emphasis Only (MA 3-13)	4,678	6,078	1,778	978	2,561
Riparian Habitat Within Mineral Production Areas (MA 14)	98	98	98	98	98
Unsatisfactory Riparian Habitat Targeted for Improvement thru Intensive Grazing Mgmt	2,038	3,585	3,603	3,603	3,094
Unsatisfactory Riparian Habitat Not Targeted for Improvement thru Intensive Grazing Mgmt	2,166	619	601	601	1,110
Satisfactory Riparian Habitat Targeted for Maintenance thru Intensive Grazing Mgmt	637	808	637	637	637
Big Game Winter Range Targeted for Improvement through Intensive Grazing Management	3,290	5,450	5,929	5,929	5,370
NONRENEWABLE RESOURCES					
Total P.L. Available for Oil and Gas Leasing	205,586	205,586	177,849	191,236	205,066
Surface Occupancy Permitted with Standard Stipulations	135,372	205,426	109,239	112,086	112,810
Surface Occupancy Permitted with Seasonal Restrictions	36,874	0	66,050	78,550	84,076
No Surface Occupancy	33,340	160	2,560	600	8,180
Total P.L. Closed to Oil and Gas Leasing	0	0	27,737	14,350	520
Total Federal Minerals Open to Mineral Entry	203,850	203,850	176,093	189,480	203,310
Total P.L. Withdrawn from Mineral Entry	1,460	1,460	29,217	15,830	2,000

Allocation/Output	Alternatives A (No Action)	B	C	D	E (Preferred)
LAND OWNERSHIP AND ADMINISTRATION					
Total P.L. within Retention Areas	145,660 *	126,872	126,872	126,872	126,872
Total P.L. within Areas Considered for Exchanges and Sales	0 *	18,788	18,788	18,788	18,788
Total P.L. to be Excluded from Utility and Transportation Corridor Development	0	0	27,757	14,370	540
Total P.L. to be Avoided by Corridor Development	30,060	160	12,253	11,640	17,620
Total P.L. Available for Further Consideration for Corridor Development	115,600	145,500	105,650	119,650	127,500

*Alternative A assumes a continuation of the existing land ownership pattern for analysis purposes.

Allocation/Output	A (No Action)	B	C	D	E (Preferred)
RECREATION, CULTURAL, AND AESTHETIC RESOURCES					
Total P.L. Available for Roadless Nonmotorized Recreation	28,460	0	30,137	14,790	8,660
Total P.L. Available for Roaded and/or Motorized Recreation	107,720	145,660	106,022	121,369	131,919
Total P.L. Roaded but not Available for Motorized Recreation	9,440	0	9,440	9,440	5,040
Total P.L. Protected for Recreation Sites	40	0	61	61	41
Total P.L. with Visual Resource Management Emphasis	6,500	0	10,200	10,200	7,850
Total P.L. with Historic and Cultural Resource Mgmt Emphasis	160	160	160	160	160

[1] CFL within MAs 2, 4, 5, 6, and 10; timber harvest permitted but restricted by special multiple use considerations.

[2] TPCC restricted or, in some cases, both TPCC restricted and restricted by MA guidelines.

P.L. — Public Land

TABLE 2-17

SUMMARY OF THE IMPACTS OF THE ALTERNATIVES ON RESOURCES

A No Action	B Production	C Protection	D Partial Wilderness	E Proposed Action
Air Quality. Project construction on approximately 1,275 acres/year and slash burning in the resource area will cause a decrease in localized air quality.	Air Quality. Project construction on approximately 1,730 acres/year and slash burning in the resource area will cause a decrease in localized air quality.	Air Quality. Project construction on approximately 1,170 acres/year and slash burning in the resource area will cause a decrease in localized air quality.	Air Quality. Project construction on approximately 1,375 acres/year and slash burning in the resource area will cause a decrease in localized air quality.	Air Quality. Project construction on approximately 1,425 acres/year and slash burning in the resource area will cause a decrease in localized air quality.
Soil and Water. Watershed conditions will improve on 6,746 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality.	Soil and Water. Watershed conditions will improve on 12,996 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality.	Soil and Water. Watershed conditions will improve on 23,926 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality.	Soil and Water. Watershed conditions will improve on 23,926 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality.	Soil and Water. Watershed conditions will improve on 15,409 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality.
Road construction totaling 9.6 miles/year will cause short-term increases in sediment production in streams.	Road construction, which will increase to 12.9 miles per year, will cause short-term increases in sediment production in streams.	Road construction, which will increase to 9.0 miles per year, will cause short-term increases in sediment production in streams.	Road construction, which will increase to 10.2 miles per year, will cause short-term increases in sediment production in streams	Road construction, which will increase to 10.5 miles per year, will cause short-term increases in sediment production in streams.
Energy and Minerals. The removal of some withdrawals and release of the WSAs will cause a long-term increase in opportunities for mineral exploration.	Energy and Minerals. The removal of some withdrawals and release of WSAs will cause a long-term increase in opportunities for mineral and energy exploration.	Energy and Minerals. Wilderness designation for 27,737 acres will cause long-term impacts by excluding energy and mineral exploration and development.	Energy and Minerals. Wilderness designation for 14,350 acres will cause long-term impacts by excluding energy and mineral exploration and development on areas of low and medium potential.	Energy and Minerals. Wilderness designation for 520 acres will cause long-term impacts by excluding energy and mineral exploration and development on areas of low energy and medium mineral potential.
The seasonal closure of roads in the resource area will cause short and long-term impacts by restricting access to 36,874 acres of public land.	Some land exchanges may cause long-term increases in the amount of land having private ownership over public minerals and associated problems.	The seasonal closure of roads in the resource area will cause short and long-term impacts by restricting access to 66,050 acres of public land.	The seasonal closure of roads in the resource area will cause short and long-term impacts by restricting access to 78,550 acres of public land.	The seasonal closure of roads in the resource area will cause short and long-term impacts by restricting access to 84,076 acres of public land.
No surface occupancy on 33,340 acres will cause a long-term decrease in the opportunities for oil and gas exploration.	The formal withdrawal of up to 160 acres at historic mining sites will cause a long-term decrease in opportunities for mineral exploration.	Some land exchanges may cause long-term increases in the amount of land having private ownership over public minerals and associated problems.	Some land exchanges may cause long-term increases in the amount of land having private ownership over public minerals.	Some land exchanges may cause long-term increases in the amount of land having private ownership over public minerals.

	The continuance of 1,300 acres in powersite withdrawals will cause a short-term or possibly a long-term (depending on withdrawal review recommendations) decrease in opportunities for mineral exploration.	The removal of some withdrawals will cause a long-term increase in opportunities for mineral and energy exploration. The creation of an ACEC to protect a unique geologic site will allow its continued use by educational institutions.	The removal of some withdrawals will cause a long-term increase in opportunities for mineral and energy exploration. The creation of an ACEC to protect a unique geologic site will allow its continued use by educational institutions.	The removal of some withdrawals will cause a long-term increase in opportunities for mineral and energy exploration. The creation of an ACEC to protect a unique geologic site will allow its continued use by educational institutions.
Lands. The present scattered land pattern and access limit effective use and management of resources. Withdrawal removal will cause a long-term increase in resource use on 500 acres of public land. Restricting transportation and utility corridors to 75% of the resource area will cause a long-term decrease in possible corridor routes.	Lands. Land base adjustment allows consolidation of public lands and acquisition of important resource values. Providing access to an additional 9,500 acres of public land allows greater public use and improved management. Removal of withdrawals will cause a long-term increase in resource use and make the land available for land base adjustment.	Lands. Land base adjustment allows consolidation of public lands and and acquisition of important resource values. Providing access to an additional 9,500 acres of public land allows greater public use and improved management. Removal of withdrawals will cause a long-term increase in resource use and make the land available for land base adjustment. Restricting transportation and utility corridors to 73% of the resource area will cause a long-term decrease in possible corridor routes.	Lands. Land base adjustment allows consolidation of public lands and acquisition of important resource values. Providing access to an additional 9,500 acres of public land allows greater public use and improved management. Removal of withdrawals will cause a long-term increase in resource use and make the land available for land base adjustment. Restricting transportation and utility corridors to 82% of the resource area will cause a long-term decrease in possible corridor routes.	Lands. Land base adjustment allows consolidation of public lands and acquisition of important resource values. Providing access to an additional 9,500 acres of public land allows greater public use and improved management. Removal of withdrawals will cause a long-term increase in resource use and make the land available for land use adjustment. Restricting transportation and utility corridors to 88% of the resource area will cause a long-term decrease in possible corridor routes.

A No Action	B Production	C Protection	D Partial Wilderness	E Proposed Action
Recreation. Timber harvest on 1,216 acres and 9.6 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in recreation opportunities associated with undeveloped land and an increase in motorized recreation. Mineral development could cause both a short and long-term impact by disturbing scenery and recreation sites. Special management for 28,500 acres will allow an increase in primitive recreation activity.	Recreation. Timber harvest on 1,660 acres and 12.9 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in recreation opportunities associated with undeveloped land and an increase in motorized recreation. Mineral, oil and gas, and possible transportation and utility corridor development could cause short and long-term impacts by disturbing recreation sites. Opening WSAs for multiple use would cause a long-term increase in seasonal motorized recreation and long-term decrease in primitive recreation.	Recreation. Timber harvest on 1,120 acres and 9 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation. Wilderness designation for 27,737 acres and special management for 2,400 acres will allow maintenance of existing primitive recreation activity and backcountry hunting opportunities. Mineral development could cause both a short and long-term impact by disturbing recreation sites.	Recreation. Timber harvest on 1,313 acres and 10.2 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation. Wilderness designation for 14,350 acres and special management for 440 acres will allow primitive recreation activity and backcountry hunting opportunities. Mineral development could cause both a short and long-term impact by disturbing recreation sites.	Recreation. Timber harvest on 1,352 acres and 10.5 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation. Wilderness designation for 520 acres and special management on 8,140 acres will allow primitive recreation activity. Mineral, oil and gas, and possible transportation and utility corridor development could cause short and long-term impacts by disturbing recreation sites.
Visual. Timber harvest on 1,216 acres/year, 9.6 miles of road construction per year, range developments, oil and gas leasing on 135,372 acres with standard stipulations, and possible utility corridor development on 115,600 acres will cause long-term impacts that bring about some evident changes in the landscape. Mineral development will cause short-term impacts that bring about evident changes in the landscape.	Visual. Timber harvest on 1,660 acres/year, 12.9 miles of road construction per year, range developments, oil and gas leasing on 205,426 acres with standard stipulations, mineral development on 20 to 40 acres/year and possible utility corridor development on 145,500 acres will cause short and long-term impacts causing changes in the landscape in visually sensitive areas.	Visual. Timber harvest on 1,120 acres/year, 9.0 miles of road construction per year, oil and gas leasing on 109,239 acres with standard stipulations, possible utility corridor development on 105,650 acres will cause long-term impacts that bring about some evident change in the landscape. Mineral development will cause short-term impacts that bring about evident changes in the landscape.	Visual. Timber harvest on 1,313 acres/year, 10.2 miles of road construction per year, oil and gas leasing on 112,086 acres with standard stipulations, possible utility corridor development on 119,650 acres will cause long-term impacts that bring about some evident change in the landscape. Mineral development will cause short-term impacts that bring about evident changes in the landscape.	Visual. Timber harvest on 1,352 acres/year, 10.5 miles of road construction per year, oil and gas leasing on 112,810 acres with standard stipulations, possible utility corridor development on 127,500 acres will cause long-term impacts that bring about some evident change in the landscape. Mineral development will cause short-term impacts that bring about evident changes in the landscape.

Management of 6,500 acres along the Clark Fork, Blackfoot, and Bear Gulch corridors emphasizing visual quality will result in maintenance of scenic quality.		Management of 10,200 acres along Clark Fork River, Blackfoot River, Bear Gulch, Flint Creek, and Rock Creek as scenic corridors will result in the maintenance of their scenic quality.	Management of 10,200 acres along Clark Fork River, Blackfoot River, Flint Creek, and Rock Creek as scenic corridors will result in the maintenance of their scenic quality.	Management of 7,850 acres along Clark Fork River, Blackfoot River, Flint Creek, and Rock Creek as scenic corridors will result in the maintenance of their scenic quality.
Cultural. Increased resource management activities will stimulate discovery of cultural sites in the resource area. Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.	Cultural. Increased resource management activities stimulate discovery of cultural sites in the resource area. Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.	Cultural. Increased resource management activites stimulate discovery of cultural sites in the resource area. Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.	Cultural. Increased resource management activities stimulate discovery of cultural sites in the resource area. Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.	Cultural. Increased resource management activities stimulate discovery of cultural sites in the resource area. Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.
Wilderness. Grazing on 11,900 acres will cause short-term impacts on wilderness values by allowing the use of motorized vehicles on established trails for herd management and construction of range projects. Mineral exploration and development could cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc. Recreation restrictions on motorized vehicle use will protect solitude and naturalness values over most of the 27,737 acres of special management area. Recreational vehicles would be limited to only existing access roads.	Wilderness. Most of the 27,737 acres would be available for timber harvest; however, during the life of the plan, the acreage cut would be about 3,737 acres, causing a loss of naturalness and solitude. Timber harvest would create transitory range and allow grazing to increase on the 27,737 acres causing short and long-term impacts on wilderness values by expanding the need for motorized vehicles for herd management and construction of range projects. Energy and mineral exploration and development without special stipulations to protect solitude and natural values would cause short-term impacts, if no discoveries were made, from the use of motorized and seismic equipment. If discoveries were made, long-term impacts would result from access roads, drill pads, etc.	Wilderness. Wilderness values will receive protection on 27,737 acres of public lands allowing natural systems to continue with minimum impact from the development of other resources. Mineral development would be limited to existing 40 claims; oil and gas activity would be limited to existing leases and controlled by special stipulations. The impacts of development of these claims would be similar to Alternative A, but affect a limited amount of acreage.	Wilderness. A total of 13,387 acres would be available for timber harvest; however, during the life of the plan, the acreage cut would be about the same amount as Alternative B. Therefore impacts would be similar. Impacts from grazing would be the same as Alternative A. Energy and mineral exploration and development on 13,387 acres could cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc. Wilderness values will receive protection on 14,350 acres of public lands allowing natural systems to continue with minimum impact from the development of other resources.	Wilderness. A total of 19,617 acres would be available for timber harvest; however, during the life of the plan the acreage cut would be about the same amount as Alternative B. Therefore, impacts would be similar. The impacts of grazing would be the same as Alternative A. Energy and mineral exploration and development on 19,617 acres could cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc. Recreation restrictions on motorized vehicle use on 7,600 acres will protect solitude and naturalness values over most of the special management area.

A No Action	B Production	C Protection	D Partial Wilderness	E Proposed Action
Timber harvest restrictions will maintain the wilderness values on 27,737 acres of public lands allowing natural systems to continue with minimum impact from the development of other resources.	Utility and transportation corridor development in these areas could result in long-term impacts on solitude and naturalness by altering the landscape, if a line or roads were built. The development would draw motorized use to the corridor.		Utility and transportation corridor development would be considered for 13,387 acres and, if a line and roads were to be built, could result in long-term impacts on solitude and naturalness by altering the landscape.	Wilderness values will receive protection on 520 acres if the adjacent national forest is designated as wilderness. This would allow natural systems to continue with minimum impact from the development of other resources. Utility and transportation corridor development would be considered for 19,617 acres and, if a line or roads were to be built, could result in long-term impacts on solitude and naturalness by altering the landscape.
Forestry. The total CFL available for harvest is reduced by 22 percent over the long term due to special management of 24,540 acres. The timber yield on 22,460 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife. Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. Visual corridor management will impose additional restrictions on 6,500 acres.	Forestry. Forest productivity would be enhanced by comprehensive management of nearly all CFL thereby controlling outbreaks of forest infestations and improving stand structure. There would be no reduction in CFL for WSAs or special management areas, and no volume restrictions for wildlife habitat. Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. However, land adjustment programs could alleviate much of this impact by reducing scattered ownership.	Forestry. The total CFL available for harvest is reduced by 22 percent over the long term due to wilderness and special management of 24,540 acres of CFL. The timber yield on 49,430 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife. Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. However, land adjustment programs could alleviate much of this impact by reducing scattered ownership. Visual corridor management will impose additional restrictions on 10,200 acres.	Forestry. The total CFL available for harvest is reduced by 13 percent over the long term due to wilderness and/or special management of 14,790 acres of CFL. The timber yield on 61,880 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife. Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. However, land adjustment programs could alleviate much of this impact by reducing scattered ownership. Visual corridor management will impose additional restrictions on 10,200 acres.	Forestry. The total CFL available for harvest is reduced by 6 percent over the long term due to special management of 7,440 acres of CFL. The timber yield on 64,720 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife. Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. However, land adjustment programs could alleviate much of this impact by reducing scattered ownership. Visual corridor management will impose additional restrictions on 7,850 acres.

Range. The number of AUMs available for livestock grazing would remain at 5,930 AUMs over the short term. However, a 18 percent increase in livestock forage to 6,981 AUMs is predicted over the long term due to the creation of transitory range in logged areas. Vegetative condition will improve on 6,746 acres due to intensive range management. The spread of noxious weeds would be checked with herbicides along 3 miles of road per year.	Range. Management actions would have a short-term impact of increasing AUMs available for livestock grazing to 9,211 AUMs, a 55% increase. In the long-term the total increase would be 11,662 AUMs, a 97 percent increase. This would be the result of improved vegetative condition and increased timber harvest. Vegetative condition will improve on 12,996 acres due to establishment of AMP programs. The spread of noxious weeds would be checked along 4 miles of roads with herbicides and on 10 acres of spot treatment per year.	Range. In the short term, riparian habitat management would cause a 39 percent reduction in 3,595 AUMs available for livestock grazing. In the long term, AUMs for livestock grazing would increase to 4,232 but still would represent only a 29 percent reduction from the present level of use. Vegetative condition will improve on 23,926 acres due to riparian habitat management. Noxious weeds would spread in drainages and along roads if only biological controls were used.	Range. In the short term, riparian habitat management would cause a 39 percent reduction to 3,595 AUMs available for livestock grazing. In the long term, AUMs for livestock grazing would increase to 4,232 but still would represent only a 29 percent reduction from the present level of use. Vegetative condition will improve on 23,926 acres due to riparian habitat management. Noxious weeds would spread in drainages and along roads if only biological controls were used.	Range. In the short term, management actions would increase the AUMs available for livestock grazing by 5 percent over the present 5,930 AUMs increasing AUMs to 6,245. Over the long term, the total increase would be 35 percent increasing to 8,013 AUMs due to improved vegetative condition and increased timber harvest. Vegetative condition will improve on 15,409 acres due to establishment of AMP programs. The spread of noxious weeds would be checked with herbicides along 4 miles of roads per year.

A No Action	B Production	C Protection	D Partial Wilderness	E Proposed Action
Wildlife and Fisheries. Management activities on about 24,320 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, increasing social intolerance and forage competition with livestock, and increasing the destruction of habitat by road building and other resource development.	Wildlife and Fisheries. Management activities on about 33,200 acres will cause long-term impacts to wildlife summer and winter range by reducing security cover, thermal cover, and old-growth timber stands; disturbing riparian sites and areas where young are reared; increasing social intolerance and forage competition with livestock; and increasing the destruction of habitat by road building and other resource development.	Wildlife and Fisheries. Management activities on about 22,400 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, increasing social intolerance and forage competition with livestock, and increasing the destruction of habitat by road building and other resource development.	Wildlife and Fisheries. Management activities on about 26,260 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, increasing social intolerance and forage competition with livestock, and increasing the destruction of habitat by road building and other resource development.	Wildlife and Fisheries. Management activities on about 27,040 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, increasing social intolerance and forage competition with livestock, and increasing the destruction of habitat by road building and other resource development.
Intensive grazing management will improve forage conditions on about 3,290 acres of big game winter range and on 2,038 acres of riparian habitat.	Intensive grazing management will improve forage conditions on about 5,450 acres of big game winter range and on 3,585 acres of riparian habitat.	Intensive grazing management will improve forage conditions on about 5,929 acres of big game winter range and on 3,603 acres of riparian habitat.	Intensive grazing management will improve forage conditions on about 5,929 acres of big game winter range and on 3,603 acres of riparian habitat.	Intensive grazing management will improve forage conditions on about 5,370 acres of big game winter range and on 3,094 acres of riparian habitat.
Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.	Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.	Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.	Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.	Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.
Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.	Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.	Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.	Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.	Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.
Long-term improvement, due to intensive grazing management, is expected along 3 miles of stream presently in suboptimum condition.	Long-term improvement, due to intensive grazing management, is expected along 8 miles of stream presently in suboptimum condition.	Long-term improvement, due to intensive grazing management, is expected along 6 miles of stream presently in suboptimum condition.	Long-term improvement, due to intensive grazing management, is expected along 8 miles of stream presently in suboptimum condition.	Long-term improvement, due to intensive grazing management, is expected along 6 miles of stream presently in suboptimum condition.
Special management on 24,400 acres would maintain or slightly improve habitat quality over the long term.				

	The sale of public lands could have adverse impacts on wildlife habitat if the lands were converted to uses not compatible with wildlife.	Wilderness, special management areas, and an emphasis on habitat management on 55,920 acres would maintain or improve habitat quality over the long term. The sale of public lands could have adverse impacts on wildlife habitat if the lands were converted to uses not compatible with wildlife.	Wilderness, special management areas, and an emphasis on habitat management on 55,920 would maintain or improve habitat quality over the long term. The sale of public lands could have adverse impacts on wildlife habitat if the lands were converted to uses not compatible with wildlife.	Wilderness, special management areas, and an emphasis on habitat improvement on 68,120 acres would maintain or improve habitat quality over the long term. The sale of public lands could have adverse impacts on wildlife habitat if the lands were converted to uses not compatible with wildlife.
Socioeconomic. Forest management has created 57 primary jobs in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created. Grazing management would contribute an increase in ranch income of less than one percent to lessees and permittees over the long term. PILT payments for BLM lands in Granite, Missoula, and Powell counties will continue at about $19,600 per year. Recreation on public lands will contribute at least $1,400,000/year to the local economy. The recreation opportunities provided enhance the western lifestyle which incorporates backcountry activities, hunting, and visiting historical sites. Mining on public lands will contribute jobs and money to the local economy.	Socioeconomic. Forest management would create 77 primary jobs in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created. Grazing management could contribute an increase in ranch income of up to two percent to lessees and permittees over the long term. PILT payments for BLM lands in Granite, Missoula, and Powell counties may be affected by land adjustment if lands from different counties are exchanged. Grazing permittees and lessees may also be affected by such adjustments. Recreation on public lands will contribute about the same opportunities as in Alternative A. Mining on public lands will contribute jobs and money to the local economy.	Socioeconomic. Forest management would create 53 primary jobs or four less than Alternative A in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created. Grazing management could reduce ranch income by as much as one percent to lessees and permittees over the long term. Mining in traditional areas will continue to provide jobs and money to the local economy. The withdrawal of 29,217 acres would preclude any future development and the number of jobs and money that could be generated from mineral exploration and development would not materialize. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A. Land adjustments would have similar impacts as in Alternative B.	Socioeconomic. Forest management would create 62 primary jobs in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created. Grazing management impacts would be similar to Alternative C. Mining in traditional areas will continue to provide jobs and money to the local economy. The withdrawal of 15,830 acres would preclude any future development. The effect on jobs and money, which could be generated, would be small. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A. Land adjustments would have similar impacts as in Alternative B.	Socioeconomic. Forest management would create 63 primary jobs in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created. Grazing management impacts would be similar to Alternative A. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A. Land adjustments would have similar impacts as in Alternative B. Mining in traditional areas would continue to provide jobs and money to the local economy. The withdrawal of 2,000 acres would preclude any future development. The number of jobs and money that would not be generated would be very small.

ALTERNATIVES ELIMINATED FROM DETAILED STUDY

The following alternatives were considered as possible methods of resolving specific issues in the Garnet Resource Area but were eliminated from detailed study due to technical, legal, and/or other constraints.

No Grazing

The elimination of livestock grazing from all public land was considered as a possible method of resolving grazing related issues. Based on interdisciplinary analysis during the criteria development step of the planning process, the no grazing alternative was eliminated from further study. The analysis of the No Grazing alternative is provided in Appendix N and is summarized below.

Resource conditions; including range vegetation, watershed, and wildlife habitat; do not warrant a resource areawide prohibition of livestock grazing. Public comments received during the issue identification and criteria development steps indicate a general acceptance of livestock grazing on public land provided that such grazing is properly managed.

The highly fragmented pattern of public land ownership in the resource area would necessitate extensive fence construction, at public expense, if livestock are to be effectively excluded from public land. Such fencing would not only be prohibitively costly but also would be likely to disrupt established patterns of wildlife movement, and could also affect public access.

In summary, implementation of a no grazing alternative is not considered to be feasible or necessary except in specific, localized situations where livestock use is incompatible with other important management objectives. Such situations have been identified in the plan under the discussion of unleased tracts (Chapter 2) and in Appendix I.

Maximum Unconstrained Alternatives

No alternatives that proposed maximum resource areawide production or protection of one resource at the expense of other resources were considered because this would violate the BLM's legal mandate to manage public land on a multiple use, sustained yield basis.

SELECTION OF THE PREFERRED ALTERNATIVE

Each alternative considered in detail represents a comprehensive plan for managing all land and resources in the Garnet Resource Area. However, what differentiates one alternative from another is the way each of the issues would be resolved if that alternative were selected for implementation. Thus, selection of the preferred alternative was based largely on the effects of the alternative in resolving issues. Alternative E was selected as the preferred alternative, and the management direction for resolving each of the issues under Alternative E is summarized below.

Renewable Resources

Management Direction

The preferred alternative will result in an approximate 9 percent increase in the annual harvest (7,030 mbf) and an 11 percent increase in the acres harvested annually (1,352 acres). A total of 105,020 acres of CFL or 93 percent of the total CFL would be available for forest management. Minor amounts of CFL (7 percent or 7,440 acres) would be set aside from harvest in Wales Creek, Cottonwood Creek, upper Gallagher Creek, the Quigg West area, major riparian areas along the Clark Fork and Blackfoot rivers, and active mining areas scattered throughout the resource area.

Management restrictions, which reduce the forest volume harvested by an estimated 20 percent, will be applied to 64,720 acres or 62 percent of the available CFL. These restrictions are generally designed to emphasize wildlife habitat, watershed, and recreation considerations. These areas include the better blocked portions of public land and areas adjacent to Forest Service where objectives are feasible and compatible.

Prescribed fire would not be used on 5,820 acres along streams and within developed and undeveloped recreation areas. Pesticide use would be prohibited on 4,000 acres within riparian and wilderness areas. The remainder of the area would be considered for prescribed fire and pesticide use, to meet management objectives. Standard Operating Procedures developed for the protection of soils, water quality, scenic values, and wildlife habitat would continue to be applied.

For livestock grazing, there would be minor changes from current management. A total of 33,770 acres would be unavailable for livestock grazing primarily to maintain or enhance wildlife habitat or because of their general unsuitability for grazing. These areas include Wales, Yourname, Cottonwood Meadows, Chamberlain, and Elk creeks. Eighty-one percent of these lands are currently excluded from livestock grazing. AMPs are proposed for 20 allotments (9 existing and 11 new) which contain 57 percent of the public lands (81,294 acres). The initial livestock forage allocation target will be 6,245 AUMs and over the long term may rise to nearly 8,000 AUMs. Future upward or downward adjustments in livestock use would be based on monitoring studies.

Range improvements, treatments, and grazing systems would be implemented in accordance with current BLM policy and would be designed to achieve specific multiple use objectives identified in the RMP for each allotment. Riparian habitat and winter range condition would be improved from unsatisfactory to satisfactory on 3,094 acres and 5,370 acres respectively.

Rationale

The preferred alternative provides for a balance between conflicting needs while allowing a 600 mbf increase in the annual level of harvest. The recognition and resolution of these conflicts is a central theme of this planning effort. Emphasis is shifted from large areas of CFL being unavailable for timber harvest to these acres being available but with provisions for enhancing or protecting important resource values. The emphasis is on overall multiple use. This should be achievable without serious adverse impacts to most resource values. Also, this alternative provides for significant improvement of vegetation, wildlife habitat, and riparian habitat conditions while causing minimal impacts to livestock use and other resources. Initial target stocking levels show an increase of 315 AUMs. Allotments needing the most attention and having the best potential to improve have been targeted for corrective action. This alternative attempts to manage livestock grazing to bring about the protection and improvement of environmental values.

Special Attention Resources

Management Direction

Quigg West would be recommended for wilderness designation contingent upon designation of the adjacent Forest Service Quigg unit. Key portions of Wales, Hoodoo, and Gallagher (7,600 acres) would become special management areas where development would be curtailed or restricted to protect important resource values. Those portions not included in special management areas (Yourname, lower Cottonwood, and lower Gallagher Creek) would be largely managed with emphasis on wildlife habitat considerations.

The preferred alternative would result in the designation of the 20-acre Limestone Cliffs in Rattler Gulch as an Area of Critical Environmental Concern.

The existing road closure program (areas) would be maintained. Closure of additional specific roads would be considered on a case-by-case basis. The Tenmile, Klondike, Warm Springs, and Pearson Creek areas would be high priority for future closures.

A total of 3,500 acres would be managed primarily for riparian values. All other riparian habitat would be managed under Standard Operating Procedures to protect watershed values. In addition, 5,800 acres consisting of noncommercial forest land containing important wildlife habitat with special habitat features, would be available primarily for wildlife use. A total of 88,550 acres would be managed with emphasis on wildlife habitat (winter range, special habitat features, summer/fall range, and special management areas).

Rationale

Quigg West WSA would make a logical addition to the Forest Service Quigg unit. There are few or no resource values forgone as the area is remote and rugged and would likely never be developed for uses that would conflict with wilderness values. Wales, Hoodoo, and Gallagher WSAs are similar to other areas within the resource area except they are undeveloped. Each contains its own combination of unique characteristics; however, each possesses significant resource conflicts primarily with mineral and timber. Their ecological qualities are well represented in existing wildernesses in this area. However, portions of these areas have unique and/or important values such as highly erosive soils, hot springs, wet meadows, etc. which in combination require special management. Special management areas are preferred because they allow management flexibility to protect and/or enhance resource values while still preserving their undeveloped status. Those portions not recommended as wilderness or special management areas contain high timber and/or potential mineral values and do not have the combination of unique or important values associated with the areas recommended for special management.

The Limestone Cliffs are a unique geologic feature used frequently by schools for studies and mapping purposes. The cliffs are within 200 yards of a limestone quarry and along the same geologic formation. They are subject to mineral entry, and quarrying would destroy their integrity. An ACEC designation would protect this educational resource and justify withdrawal from mineral entry.

Road and area closures are an effective and necessary method of mitigating impacts or managing conflicting resource values. The existing closure areas are achieving all or portions of the following objectives: providing wildlife security, reducing recreation conflicts, reducing road maintenance costs and needs, providing watershed protection, and enhancing recreation opportunities on adjacent private lands. The additional areas recommended for closures also would meet these objectives.

The preferred alternative would provide stated management direction for important riparian values, special habitat features (rock outcrops, caves, talus, and old-growth timber), and big game habitat without serious conflicts with other multiple resource values. Wildlife and habitat management is an important resource in western Montana and the Garnet Resource Area. This alternative seeks to balance habitat management with other competing resource values.

Nonrenewable Resources

Management Direction

Oil and gas leasing on slightly less than 100 percent of the federal minerals within the Garnet Resource Area would continue. The only area where no leasing would occur would be Quigg West. Stipulations prohibiting surface occupancy will be applied to 8,180 acres primarily within special management areas and other specific sites to protect resource values. Special stipulations, primarily directed as seasonal restrictions, would be imposed on 84,076 acres.

The preferred alternative identifies 2,000 acres or less than 1 percent of federal mineral estate to remain or be withdrawn from mineral entry. These areas include 1,300 acres in existing powersite and power project withdrawals, 520 acres in Quigg West, 20 acres at Limestone Cliffs, and 160 acres of cultural and historical sites (Coloma, Garnet, Blackfoot City, Beartown, Sand Park Cemetery, Reynolds City, etc.).

Rationale

Most of the resource area has a low to moderate potential for oil and gas, which is demonstrated by little past or present exploration activity. The use of standard or special stipulations can mitigate most potential impacts while continuing to allow the vast majority of the area to remain available for leasing. Leasing would not be consistent with wilderness designation for Quigg West. Also surface occupancy would not be consistent with the protection and management of unique or important values in the special management areas. The rationale for prohibiting surface occupancy is further explained in the previous Rationale section for Renewable Resources.

The preferred alternative would defer action on existing powersite and power project withdrawals until they are reviewed through the withdrawal review process, due for completion about 1990. Mining would not be consistent with wilderness designation for Quigg West. The area is remote and rugged, and the potential for mineral discovery is low. The rationale for withdrawal of the Limestone Cliffs was discussed under Special Attention Resources. Withdrawal of the scattered historical and cultural sites is necessary to preserve their integrity from surface disturbance. All other resource values can be adequately maintained by adherence to the BLM Surface Management Regulations.

Land Ownership and Administration

Management Direction

Retention in public ownership is recommended for 126,872 acres. The preferred alternative identifies 18,788 acres outside the retention area. Exchange is the preferred method of land adjustment. Nonfederal land with high public values would be acquired through exchange or the land pooling process, generally in the retention areas.

A total of 127,500 acres or 87 percent of the public land would remain available for further analysis and possible routing of rights-of-way (ROW). ROW would not be allowed on 540 acres in Quigg West and Limestone Cliffs and 17,620 acres would be identified for avoidance and generally be unavailable for ROW routing. The latter includes major riparian areas, special feature areas, special management areas, undeveloped recreation sites, and cultural sites.

Public access is proposed to approximately 124,100 acres or 85 percent of the public lands. Administrative access (not public access) to accomplish BLM objectives is proposed for 8,150 acres.

The land classifications on approximately 500 acres of river tracts and cultural sites would be lifted and the lands opened to the actions of the general land and mining laws. A formal withdrawal would be requested for protection of up to 160 acres of these acres involving such sites as Garnet Ghost Town, Coloma, Reynolds City, Blackfoot City, etc.

Rationale

The current land ownership pattern within the Garnet Resource Area is characterized by numerous small parcels that are inaccessible to the public, relatively difficult to manage, and often surrounded by thousands of acres of private land. The preferred alternative will allow land ownership adjustments to occur. This will result in improved management efficiency, fewer conflicts between the public and private landowners, and greater public benefits through improved access and consolidation of public land in retention areas.

The preferred alternative reflects the need to make public land available for major utility and transportation corridor development while avoiding, to the extent possible, the location of major facilities in areas of high public recreation use, high scenic and wildlife values, and residential areas. This alternative establishes general direction for corridor decisions yet preserves flexibility for adapting future decisions to changing public demands and resource conditions.

The majority of the public lands would have public access. In many instances public and resource values are not great enough to warrant public access. For example many of the tracts are small, very isolated, and without recreation values. The identified need for public access closely parallels the recommendation for lands to remain in public ownership. It remains essential in many instances for BLM to acquire administrative access on tracts outside the retention zone if needed to support other management actions.

Pre-FLPMA land classifications created de facto withdrawals of public land from disposal and mineral entry at a time when laws, policy, and regulation did not provide adequate protection. Current laws, policy, and regulation now provide adequate protection in most cases. The rationale for formal withdrawal on 160 acres is covered in the rationale for the Nonrenewable Resources.

Recreation, Cultural, and Aesthetic Resources

Management Direction

Under the preferred alternative, the 140,080 acres would be designated as limited for motorized vehicle use i.e., use restricted to existing roads and trails if they are identified as open. Some roads may be closed seasonally or yearlong depending upon management objectives. Snowmobiles would not be restricted to roads and trails but may be seasonally restricted from winter ranges. Quigg West and the Limestone Cliffs would be closed to motorized vehicle use.

Forty-one undeveloped recreation sites are identified for minimal management. These are scattered throughout the resource area and are generally associated or located near water or road closure gates. Resource management would emphasize keeping the sites in a condition to maintain their quality and use.

Under the preferred alternative the current network of snowmobile trails and National Winter Recreation Trail would be retained; cross-country ski trails would be laid out in the Garnet Ghost Town vicinity; access to tracts along the Blackfoot and Clark Fork rivers would be pursued; and no new outfitters and guides would be granted permits for hunting except in conjunction with adjoining Forest Service lands.

About 7,850 acres or 5.5 percent of the public lands would be managed to emphasize maintenance of scenic quality. These lands are located primarily along the Clark Fork, Blackfoot, and Flint Creek drainages as seen from major transportation routes.

Under the preferred alternative, Garnet Ghost Town would continue to be managed cooperatively. Key sites around Garnet such as Reynolds City, Beartown, Springtown, Summit Cabin, and Coloma, and at Blackfoot City would receive interpretive management; but preservation efforts, such as have occurred at Garnet, would not be undertaken. All significant sites would be managed for nonimpairment.

Rationale

The topography and vegetation in the Garnet Resource Area tend to naturally restrict vehicle use to roads and trails. This is the current situation as directed in previous management plans and appears to be working well. Snowmobiles generally need only be restricted from winter range or similar areas as future needs arise. Quigg West and the Limestone Cliffs will be closed to vehicle access to protect unique resource values. This alternative balances the need for public access to public land and resources with the protection of important amenity values. It also allows for flexibility to adjust future access decisions based on changing public demands and resource conditions.

There are many undeveloped recreation sites in the resource area. Under the preferred alternative, the sites receiving the greatest use will be managed for their recreation value while allowing for multiple use such as restricted timber harvest and livestock grazing. These sites average less than one acre each.

Recreation use continues to grow rapidly in western Montana; which has the state's highest demand for nonmotorized trails, second highest demand for camping and cross-country ski areas, and fourth highest demand for motorized vehicle trails. The preferred alternative meets these demands yet, where necessary, protects important resources. The two existing licensed outfitters and guides use public land in conjunction with the adjoining Forest Service. However, because of the scattered land ownership pattern, the desire by adjacent landowners not to allow commercial outfitters and guides, and heavier public use of public lands; no new permits for commercial outfitters and guides will be issued unless in conjunction with Forest Service lands or upon concurrence of the adjoining landowners. This allows the flexibility to assess demands for permits other than hunting on a case-by-case basis.

The preferred alternative would maintain the scenic quality along major transportation routes, scenic highways, and Blue Ribbon trout streams while continuing to allow multiple use. The greatest conflict occurs with timber harvest but less than 43 percent of these areas are commercial forest land. The timber can still be harvested but the silvicultural treatments may have to be adjusted to mitigate the impacts to scenic quality.

The resource area is rich in cultural history especially as it relates to mining. Garnet Ghost Town receives approximately 12,000 visitors annually and is eligible for inclusion on the National Register of Historic Places. In the past, the BLM was solely responsible for preserving the town. Under a cooperative agreement, the BLM will share the responsibility with the Garnet Preservation Association. Such cooperation will continue to ensure the continued preservation of this important historic town. Nearby mining towns vanished long ago or were not capable of being preserved to the degree of Garnet. Nonetheless they are historically important. Under the preferred alternative, these sites would receive interpretive management but not preservation management.

MONITORING AND EVALUATION

The decisions outlined in the Garnet RMP will be implemented over a period of ten years or more, depending on the availability of funding and staff. The effects of implementation will be monitored and evaluated on a periodic basis over the life of the plan. The general purposes of this monitoring and evaluation will be:

> To determine if an action is fulfilling the purpose and need for which it was designed or if there is a need for modification or termination of an action;
>
> To discover unanticipated and/or unpredictable effects;
>
> To determine if mitigative measures are working as prescribed;
>
> To ensure that decisions are being implemented as scheduled;
>
> To provide continuing evaluation of consistency with state and local plans and programs; and
>
> To provide for continuing comparison of plan benefits versus costs including social, economic, and environmental.

A specific monitoring plan will be written for the forestry, wildlife, watershed, and range programs. This plan will provide a framework for choosing the study methods that will provide the information needed to issue and implement specific management decisions which effect watershed, wildlife, and range. Monitoring efforts will focus on allotments in the I category. For the range program, methodologies are available for monitoring vegetative trend, forage utilization, actual use (livestock numbers and periods of grazing), and climate. The data collected from these studies will be used to evaluate current stocking rates, to schedule pasture moves by livestock, to determine levels of forage competition, to detect changes in plant communities, and to identify patterns of forage use. Some of the methodologies that could be used include Daubenmire canopy transects, key forage plant utilization transects, aerial and ground reconnaissance of animal numbers and grazing patterns, actual use questionnaires, and low altitude aerial photography transects.

Priorities for monitoring grazing allotments will be established in this plan. The methodology and intensity of study that is chosen for a particular allotment will be determined by the nature and severity of the resource conflicts that are present in that allotment.

For the wildlife program, monitoring will be directed at the biotic resource components using both temporary and permanent studies. The findings from these studies can be used to monitor responses in habitat condition and trend; monitor forage availability, composition, and vigor; monitor changes in cover and habitat effectiveness; and monitor habitat management objectives.

Some of the methodologies that are available include: Daubenmire canopy coverage transects, modified browse canopy coverage transects, woody riparian surveys and photo plots, range site condition ratings, height/weight grazed plant method, color infrared aerial photography, pellet group transects, fisheries species composition and populations surveys, and nongame bird and small mammal plots.

Watershed program monitoring will involve BMP evaluation, channel cross section, stream channel stability, water quality, soil erosion, soil moisture, and soil compaction. Bench mark watersheds have been established on plutonic, volcanic, and hard sedimentary rock basins to measure runoff and sediment production as well as appropriate water chemical and physical properties. Soil moisture and compaction plots have been established to evaluate some aspects of timber management. Soil erosion plots and channel cross section evaluations will be used, as necessary, to monitor sediment production.

The timber management program will be monitored on a stand basis to determine the need and timing of silvicultural treatments. The forest land management program will be monitored to ensure compliance with MA objectives.

Specific monitoring plans for other programs will be developed if the need arises. The data collected from the monitoring and evaluation process will be analyzed and fed back into the decision making process. This will provide information regarding the effects of the land use decisions, the adequacy of mitigation methods, etc. If monitoring indicates that significant unexpected adverse impacts are occurring or that mitigating measures are not working as predicted, it may be necessary to amend or revise the RMP. Conversely, if implementation and mitigating efforts are highly successful, monitoring and evaluation efforts may be reduced.

CHAPTER 3
AFFECTED ENVIRONMENT

Chapter 3 describes existing conditions in the Garnet Resource Area that will be affected by resource management options. The information in this chapter is a summary of the Garnet Resource Area Management Situation Analysis (MSA). The MSA is available for review at the Garnet Resource Area office.

SETTING

The Garnet Resource Area (GRA) includes the nine northwestern counties of Montana (see the Percent of Public Surface Ownership map). Of these nine, only three counties have a large amount of public land: Missoula, Granite, and Powell. Therefore this chapter will focus on the core area formed by these three counties.

The core area has timbered mountain ranges with narrow canyons. The ranges are separated by the Clark Fork and Blackfoot rivers and lie between the Bob Marshall Wilderness area to the north and the Anaconda/Pintler Range to the south. The city of Missoula is west of the core area and Helena, east (see the Land Status map in the map packet).

There is a total of 4,277,120 acres in the three counties. The Garnet Resource Area manages 145,660 acres.

The GRA is part of the Butte District, which was organized in 1976. The resource area was named for the Garnet Mountain Range.

Other large landholders in the core area are the Lolo and Deerlodge National Forests; Plum Creek Timber Company Inc.; Champion Timberlands; the Department of State Lands; the University of Montana, School of Forestry; and the Montana State Prison Ranch. Most of the lands are rural in character with forestry and agriculture being the most important resource uses. A few small towns dot the area; Seeley Lake, Philipsburg, Drummond, Deer Lodge, and Garrison are the largest of these.

The climate is a modified coastal type. Precipitation and number of cloudy days are greater than would be expected in a continental mountain range. This coastal influence also keeps temperatures and wind speeds within moderate ranges.

Elevations range from 10,240 feet along the Continental Divide to 3,000 feet along the Clark Fork River. This limits the growing season to an average of 70 days during the summer.

Air quality is generally good. However, the coastal weather influence can cause air inversions with cold air settling in the valleys and warm air layering above. Pollutants and dust generated from forest, agricultural, residential, and industrial activity can be caught in the inversion and cause significant deterioration in air quality.

SOIL AND WATER RESOURCES

Soils

Seven major soil types are found in the Garnet Resource Area. Table 3-1 summarizes the locations and characteristics of each soil type.

Granitic soils are found in the Wales Creek and Chamberlain Meadows area and other scattered areas in the GRA. These soils are highly susceptible to erosion and loss of nutrients.

Soils formed in tertiary-age sediments are found in the Upper Willow Creek and Ram Mountain area and other scattered areas. These soils, while erosion prone, are not as erosive as the granitics and are susceptible to compaction when wet.

Percent Public Land/County (Surface)

Powell	5.6% Public Land
Granite	4% Public Land
Missoula	1% Public Land

TABLE 3-1

MAJOR SOIL TYPES AND THEIR SELECTED CHARACTERISTICS

Parent Material	Acres	Road Construction Problems	Erosion Susceptibility	Soil Nutrients Concentrated in Surface Mineral Horizon	Compaction Susceptibility	Area
Granitics	17,500	Severe	Moderate to severe	Yes	Slight to moderate	Wales Cr., Chamberlain Meadows. Portions of Elk Cr., Kennedy Cr., Keno Cr., the W.F. of Ashby Cr., Upper Willow Cr., Ram Mtn. and E. of Blackfoot City.
Tertiary-age sediments	4,500	Moderate to severe	Moderate to severe	No	Moderate to severe	Upper Willow Cr., Ram Mtn. & small areas near Garrison & Helmville.
Tertiary-age Volcanics	45,000	Slight to severe	Slight to severe	Varies	Slight to severe	Large areas in Garnet & Hoodoo Mtn.
Limestone	32,000	Generally slight	Slight	Varies	Slight to moderate	Throughout resource area except for Upper Willow Cr., Ram Mtn., & Marcum Mtn.
Alluvium	1,500	Slight to moderate	Moderate	No	Slight to moderate	Waterways in the Garnet Range, Marcum Mtn., Rock Cr., & Upper Willow Cr.
Belt Series Rock	42,000	Slight to moderate	Generally slight	Yes	Slight to moderate	Throughout resource area
Tertiary-age rhyolite	2,000	Slight to moderate	Generally slight	Yes	Slight	Hoodoo area.

Large areas of the Garnet and Hoodoo mountain ranges are made up of soils formed in tertiary-age volcanics. Gravel and clay content is highly variable. Soils with low clay content usually have high gravel content and cause few problems due to erosion and compaction. However, where high clay content occurs with gravel content less than 35 percent, compaction and erosion problems can be severe.

Limestone bedrock occurs generally throughout the resource area. Soils formed in limestone materials have low erosion and compaction potential. Soils with deep silt and silt loam horizons are unstable when wet and dusty when dry.

Soils formed in alluvium are found along waterways in the Garnets, Marcum Mountain, Rock Creek, and Upper Willow Creek. These areas are usually highly susceptible to the effects of traffic.

Soils formed in Belt series rock can be found throughout the resource area and usually are highly resistant to erosion and compaction. Where an ash cap is present, the surface horizon may be susceptible to compaction.

Soils formed in tertiary-age rhyolite materials are found in the Hoodoo area. These soils are generally resistant to compaction and erosion.

All the public land in the Garnet Resource Area has been soil surveyed by either the BLM or Soil Conservation Service (SCS 1975). A reconnaissance geology survey (Morrison and Maierle 1978; Geo/Resource 1983) is used with the soil surveys to identify areas subject to problems of erosion, mass failure, soil compaction, and forest regeneration. The Surface Geology map shows the boundaries of the major geologic formations.

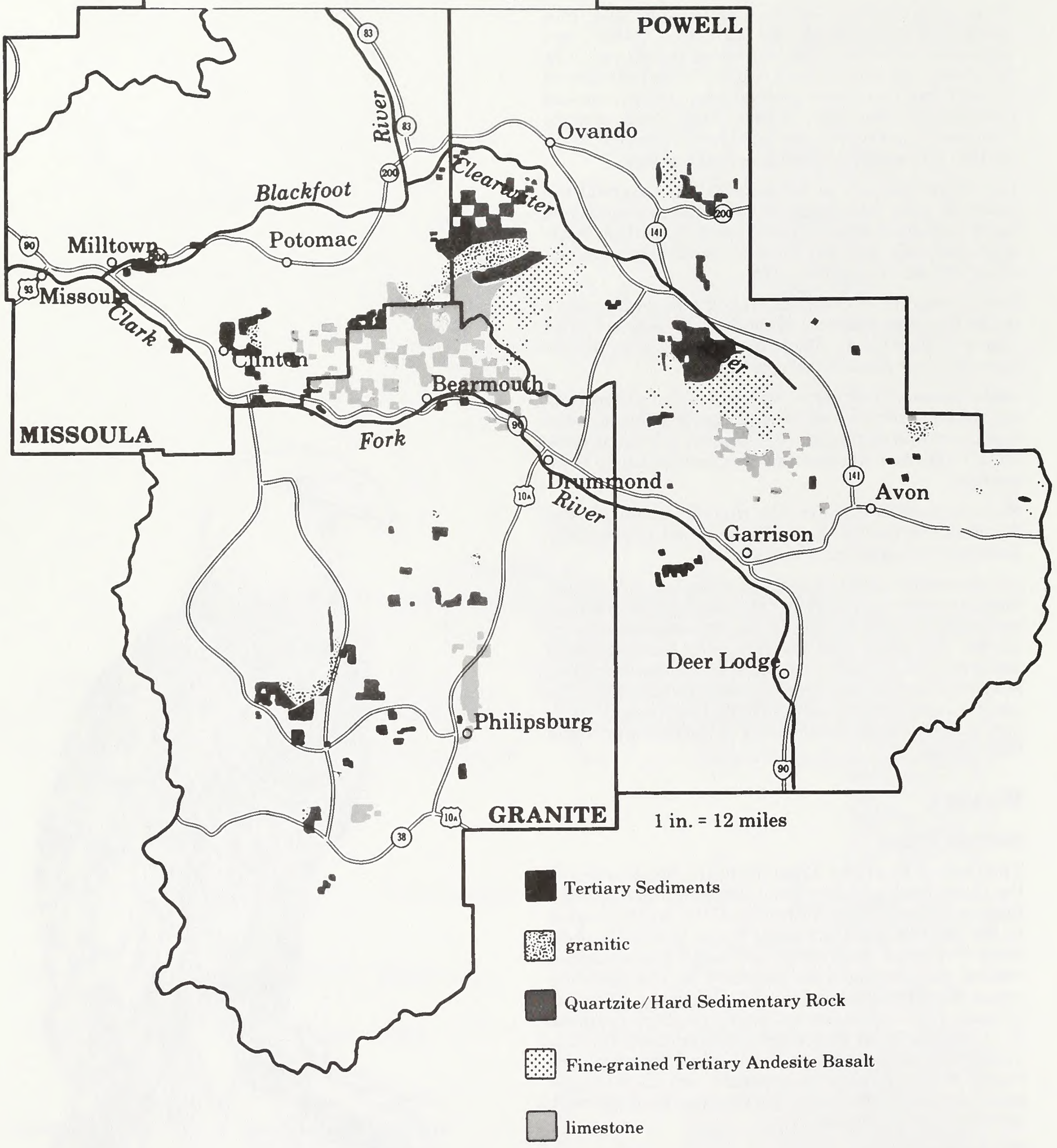
Water

Surface Water

The Garnet Resource Area lies in the headwaters of the Clark Fork and Blackfoot rivers. Major drainage basins and subbasins within the GRA are illustrated in the Hydrologic Unit map. Water quality is presently monitored on 18 streams. Table 3-2 summarizes stream monitoring data collected in the last five years. Streams are monitored to detect the effects of management activities on water quality, evaluate Best Management Practices (see Appendix B), provide a baseline on water quality, and address problem areas. Water quality is generally excellent. Some problem areas exist from past resource management activities, primarily mining.

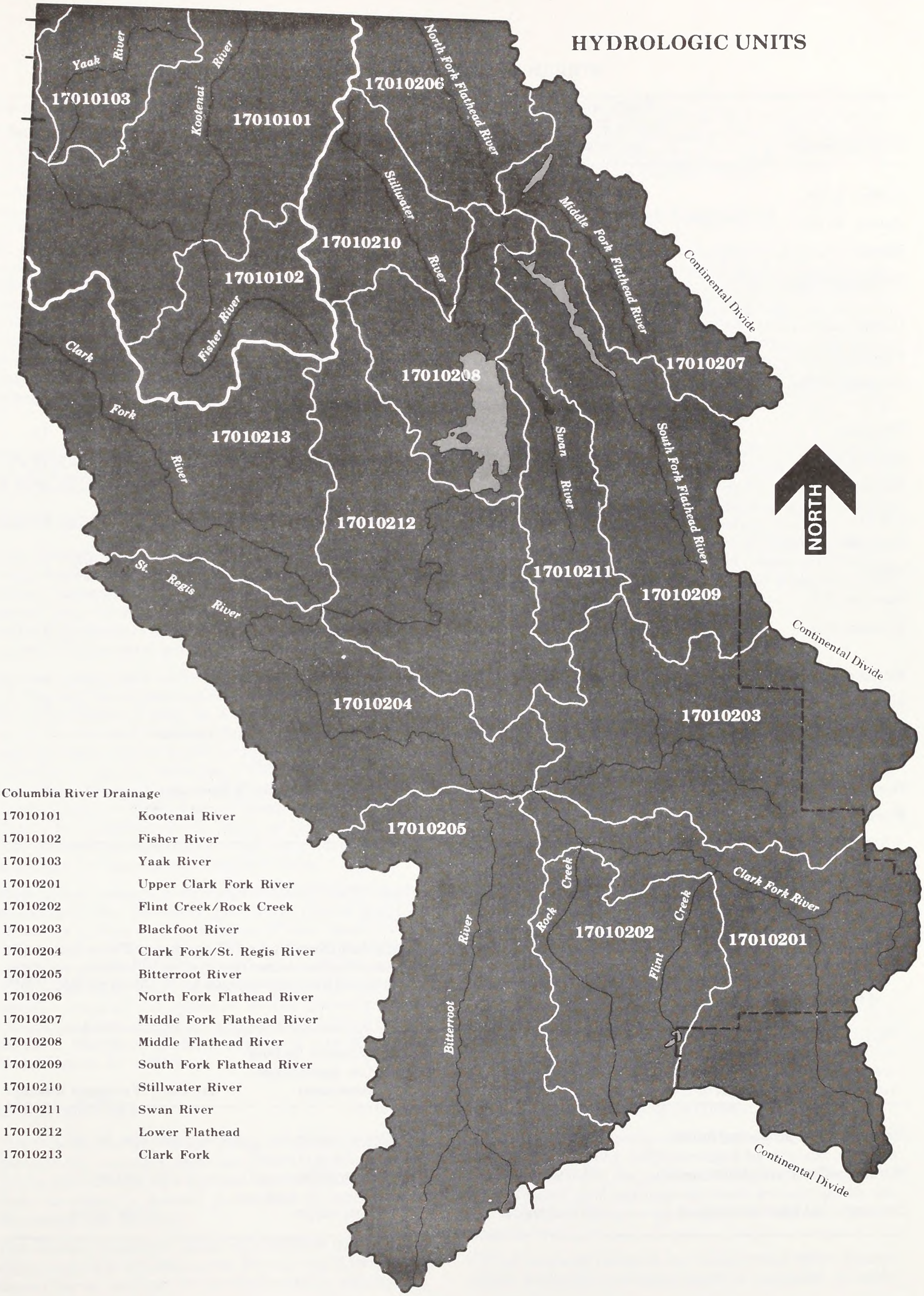
Groundwater

The reconnaissance geology surveys (Morrison and Maierle 1978; Geo/Resource 1983) estimated location and quantity of available groundwater in the GRA. There are about 2,000 undeveloped springs. Forty-four springs have been developed for stock use and watershed protection.



Surface Geology

HYDROLOGIC UNITS



Columbia River Drainage

17010101	Kootenai River
17010102	Fisher River
17010103	Yaak River
17010201	Upper Clark Fork River
17010202	Flint Creek/Rock Creek
17010203	Blackfoot River
17010204	Clark Fork/St. Regis River
17010205	Bitterroot River
17010206	North Fork Flathead River
17010207	Middle Fork Flathead River
17010208	Middle Flathead River
17010209	South Fork Flathead River
17010210	Stillwater River
17010211	Swan River
17010212	Lower Flathead
17010213	Clark Fork

TABLE 3-2
STREAM MONITORING SUMMARY

Stream Name[1]	Basin Area Above Station (sq. mile)	Suspended Sediment (ave. t/sq mi/yr)[5]	Predominant Bedrock Geology (rock type)	Years of Record[4]
Ashby, E. Fk.	5.2	3.0	limestone	5
Ashby, W. Fk.	3.6	2.2	argillites, quartzite, and granodiorite	5
Braziel	1.3	169[3]	Tertiary volcanics	3
Chamberlain #1	10.2	2.2	argillites & quartzite (hard sedimentary rock)	5
Cottonwood	15.3	3.4	argillites, quartzite, Tertiary volcanics	1
Cramer, E. Fk.	15.1	5.5	limestone	3
Cramer, W. Fk.	6.4	3.0	argillite & quartzites (hard sedimentary rock)	3
Douglas	1.8	0.84	limestone & Tertiary volcanics	1
Elk at Cap Wallace Gulch	30.9	10.0[2]	granodiorite	2
Elk #1	3.6	23.4[2]	limestone & granodiorite	5
Kennedy	4.1	3.7	granodiorite	5
Keno	2.6	7.2	limestone & granodiorite	5
Marcum #12	0.4	1.1	Tertiary volcanics	4
Marcum #18	1.7	1.1	argillites, quartzites, & Tertiary volcanics	4
McElwain	4.2	3.1	Tertiary volcanics	4
Scotchman Gulch	5.7	0.4	granodiorite	2
Union Creek	4.8	0.9	argillites, quartzites & limestone	1
Warm Springs #2	1.8	7.2	Tertiary volcanics	4
Warm Springs #4	6.9	25.0	Tertiary volcanics & limestone	4
Warm Springs #6	10.7	15.8	limestone	3

[1] Refer to Table 3-3 for locations

[2] Related to placer mining

[3] Badly eroded stream section at north side of Sec. 22

[4] Streams sampled 8 to 10 times per year

[5] Total sediment load evaluation from "Guide for Predicting Sediment Yields from Forested Watersheds." These data can be used to place basin sediment production in perspective. Generally granodiorite basins have almost 50% of total sediment load as suspended sediment, whereas in hard sediment and tertiary volcanic basins suspended sediment represents 70-80% of total sediment load.

	Granodiorite Basins	Hard Sediment Basins (argillites, quartzites, limestone)	Tertiary Volcanic Basins
High sediment producing areas	100 t/sq mi/yr	52 t/sq mi/yr	42 t/sq mi/yr
Normal sediment producing areas	25 t/sq mi/yr	13 t/sq mi/yr	11 t/sq mi/yr
Low sediment producing areas	10 t/sq mi/yr	5 t/sq mi/yr	4 t/sq mi/yr

Stream Channel Analysis

Fifty-five streams were evaluated to determine their resistive capacity to bed and bank erosion, and to provide information about their ability to recover from potential changes in flow and increases in sediment production (see Table 3-3). The methodology provides the following rating system: excellent is 0 to 38; good is 39 to 76; fair is 77 to 114; and poor is 115 and above. The lower the numerical rating the more stable the stream channel. Of the 222 miles of stream channel analyzed, 80 miles were on public land. None of the stream channels were in excellent condition, 22 miles were in good condition, 58 miles were in fair condition, and 0.1 mile was in poor condition. Braziel Creek, Section 22, contains the stream channel that is in poor condition.

ENERGY AND MINERAL RESOURCES

Geology

The geology of the Garnet Resource Area is very diverse with all three categories of rocks present: igneous, metamorphic, and sedimentary. The rock types range in age from the late Precambrian Belt series sediments (1 to 2 billion years ago), to the very recent (10 thousand years ago and less).

Igneous rocks such as basalt, andesite, and rhyolite are found in the eastern part of the Garnet Range and in Upper Willow Creek. As a result of granitic intrusions, metamorphic rocks such as marble, hornfels, and garnetite can be found around the mining areas of Garnet, Coloma, Ashby and Wallace creeks, Blackfoot City, Philipsburg, Gold Creek, Upper Willow Creek, Sluice Gulch, Top O'Deep, and Henderson Gulch. Sedimentary rocks such as limestone, argillites, dolomites, quartzites, and shale can be found generally throughout the resource area.

Most of the resource area was not directly affected by glacial activity. However, glacial till can be found in moraines in Fred Burr and Upper Willow creeks. Clay sediments were deposited in the Upper Willow Creek area by a glacial lake. In the Drummond area traces of ancient shorelines of glacial Lake Missoula are visible. Detailed information on the geologic structure of the Garnet Resource Area is contained in two surveys, Morrison-Maierle 1978 and Geo/Resource Consultants, Inc. 1983.

Oil and Gas

The Overthrust Belt of the Rocky Mountains extends through the resource area (see Overthrust Belt in the Rocky Mountains and Garnet Resource Area maps). This structure is known to contain oil and gas in Wyoming and Alberta.

The Garnet Resource Area administers oil and gas rights beneath 205,586 acres. Ninety-eight percent is leased for oil and gas or currently under application for lease. Seismic exploration is underway in western Montana. Exploratory drilling has recently started within the northwest boundary of the GRA. Producible quantities of hydrocarbons have yet to be discovered (see Table 3-4 for reserve rating).

Metallic Mineral Deposits

The historic mining districts in the resource area contain the mineral deposits of gold, silver, copper, lead, zinc, tungsten, and manganese. Much of the mineralization is associated with small granitic intrusions similar in age and rock type to the Boulder batholith. The most important districts are Clinton/Wallace, Coloma, Garnet/First Chance, Ophir, Blackfoot City, Elk Creek, Top O'Deep, Copper Cliff, Henderson, Philipsburg, and Gold Creek. The Minerals map shows the location of the districts.

The deposits include gold placers, vein deposits, replacement deposits, and contact metamorphic deposits in bedrock. The gold placers are the only deposits currently being mined. However, exploration for lodes as well as placers is occurring on the resource area. The exploration methods are backhoe test holes, bulldozer trenching, diamond and rotary-air drilling, geologic mapping, and geochemical sampling (see Table 3-4 for reserve rating).

Other Geologic Resources

The industrial minerals of barite, phosphate, and limestone are found in the GRA. Barite occurs in vein deposits in the Coloma/Washoe Creek area and in the North Fork of Elk Creek. Phosphate is actively mined by underground methods in the Warm Springs Creek area, and high-calcium limestone occurs in the Rattler and Spring gulches (see Table 3-4 for reserve rating).

Construction materials of crushed stone, riprap, sand, and gravel occur throughout the resource area. Geothermal springs exist in Wales Creek, Bearmouth, and Warm Springs. They offer recreational use but are not hot enough for commercial power production (see Table 3-4 for reserve rating).

Unusual Geologic Features

A formation of brightly colored pinnacles is found on public land about one mile east of Gilles Bridge on Rock Creek. Another feature of geologic interest is a large slump earthflow located on the southeast slope of Mount Baldy. The landslide is unique because of its size and presence of natural levees.

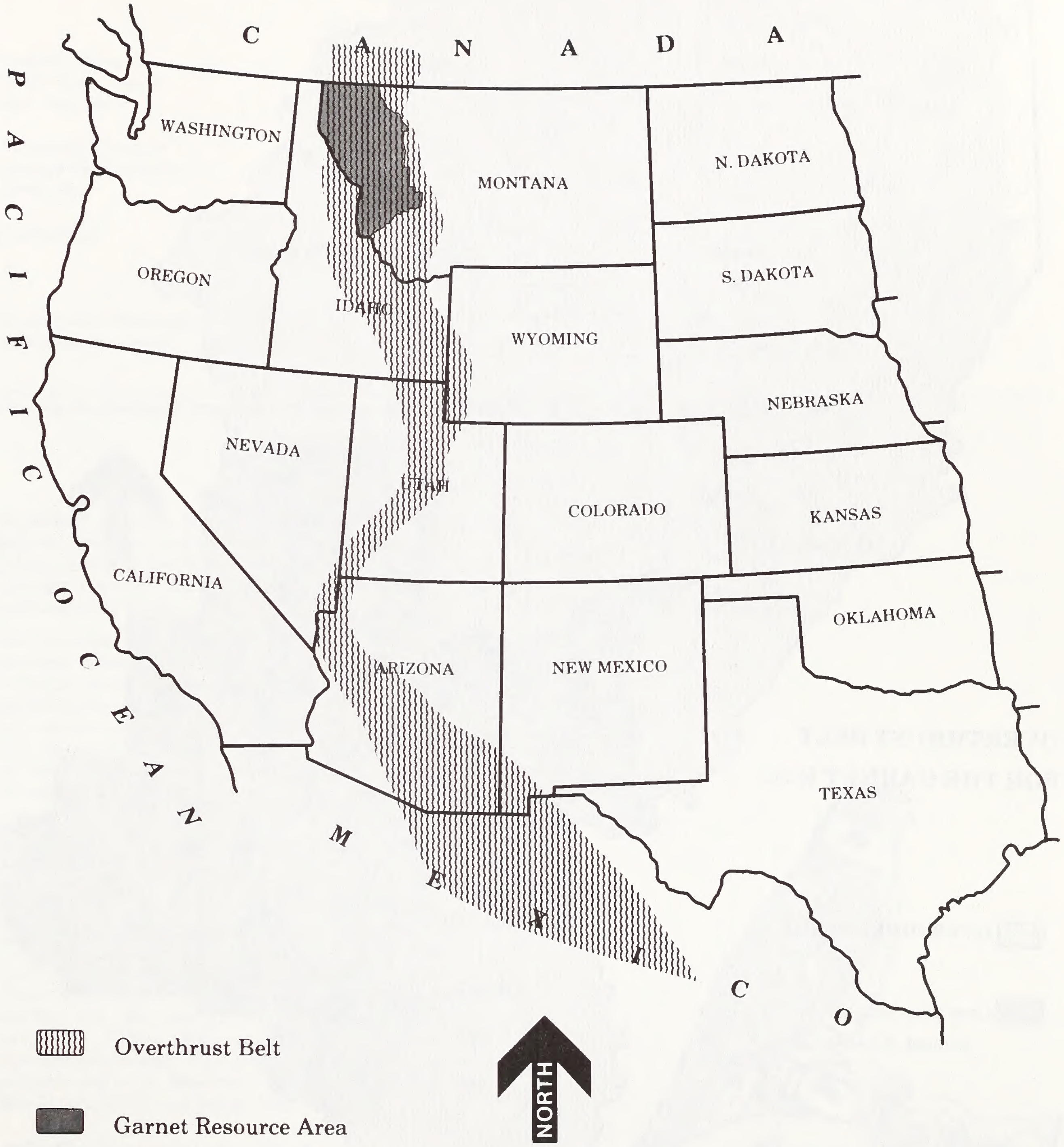
A well exposed outcrop of Madison Limestone lies in Rattler Gulch. The cliffs are used by several colleges and high schools for geologic mapping projects. The accessibility and outcrop exposure encourage its use by both local schools and others outside the immediate area.

Other areas of interest are abandoned mine dumps where minerals are found such as orpiment, bornite,

TABLE 3-3

STREAM REACH INVENTORY AND CHANNEL STABILITY ANALYSIS

Stream	Rating	Numerical Rating	Location	Miles Inventoried	
				Total	BLM
Miners Gulch	fair	84	T. 8 N., R. 15 W.	2.5	0.5
Beaver Creek	fair	89	T. 8 N., R. 15 W.	2.7	1.1
Bear Creek	good	75	T. 8 N., R. 15 W.	3.2	1.1
Huepeck Gulch	fair	85	T. 8 N., R. 15 W.	2.0	0.8
Alder Gulch	fair	85	T. 8 N., R. 15 W.	1.4	1.0
Niles Gulch	good	76	T. 8 N., R. 15 W.	1.1	0.9
Unnamed (between Beaver & Bear creeks)	good	69	T. 8 N., R. 15 W.	0.5	0.5
Huepeck Gulch tributary (S.F.)	fair	95	T. 8 N., R. 15 W.	1.2	0.9
Flat Gulch	fair	74	T. 7 N., R. 16 W.	2.3	1.5
Scotchman Gulch	fair	91	T. 7 N., R. 16 W.	3.3	3.3
Mill Gulch	good	56	T. 7 N., R. 16 W.	0.9	0.8
Windlass Gulch	good	65	T. 7 N., R. 16 W.	3.0	2.0
Indian Creek	poor	151	T. 12 N., R. 10 W.	0.6	0
Indian Creek, E.F.	fair	94	T. 12 N., R. 10 W.	2.9	1.8
Indian Creek, W.F.	fair	98	T. 12 N., R. 10 W.	3.7	2.0
Hall Creek	good	65	T. 12 N., R. 10 W.	2.5	0.6
Gallagher Creek	fair	87	T. 11 N., R. 10 W.	6.8	3.5
Cottonwood Creek (WSA 79)	fair	91	T. 12 N., R. 10 W.	17.0	5.8
Cooper Creek	fair	88	T. 12 N., R. 10 W.	3.0	1.0
Braziel Creek (poorest Section-132)	fair	100	T. 12 N., R. 10 W.	3.2	1.5
Braziel Creek, W.F.	fair	98	T. 12 N., R. 10 W.	3.1	1.1
Warm Springs Creek	fair	93	T. 10 N., R. 9 W.	14.2	1.0
Ten Mile	fair	96	T. 12 N., R. 14 W.	5.5	2.9
Elk Creek, N.F.	good	71	T. 13 N., R. 14 W.	2.4	2.0
Deep Creek	fair	89	T. 12 N., R. 14 W.	4.2	0.6
Secret Gulch	fair	92	T. 12 N., R. 14 W.	1.2	0
First Chance Gulch	good	74	T. 12 N., R. 14 W.	1.1	0.9
Deer Gulch	good	69	T. 13 N., R. 12 W.	2.6	1.6
Bear Creek	good	76	T. 13 N., R. 17 W.	2.6	0
Turah Creek	good	68	T. 13 N., R. 17 W.	1.0	0
Kendall Creek	good	69	T. 12 N., R. 17 W.	2.3	0
Donovan Creek	good	72	T. 12 N., R. 17 W.	2.1	0
Dirty Ike Creek	fair	82	T. 12 N., R. 17 W.	4.1	0.4
Wallace Creek	fair	97	T. 12 N., R. 17 W.	3.9	2.1
Starvation Creek	fair	95	T. 11 N., R. 16 W.	3.2	0.8
Cramer Creek	fair	91	T. 12 N., R. 15 W.	9.5	0.6
Ryan Creek	fair	85	T. 11 N., R. 15 W.	3.0	0.9
Marcella Creek	fair	83	T. 11 N., R. 15 W.	3.9	0.6
Dry Gulch	fair	105	T. 11 N., R. 15 W.	5.0	2.3
Bear Gulch and tributaries	fair	90	T. 12 N., R. 14 W.	8.9	0.8
Mulkey Gulch (Dry Mulkey-80)	fair	110	T. 11 N., R. 13 W.	7.7	2.1
Little Bear	fair	88	T. 11 N., R. 14 W.	1.7	0
Rattler Gulch	good	71	T. 11 N., R. 13 W.	1.2	0.4
Douglas Creek	fair	102	T. 12 N., R. 13 W.	6.8	3.3
Murray Creek	good	75	T. 12 N., R. 12 W.	4.3	2.5
McElwain Creek	fair	78	T. 13 N., R. 12 W.	4.2	3.4
Yourname Creek	good	63	T. 13 N., R. 13 W.	7.1	0.8
Wales Creek	good	63	T. 13 N., R. 13 W.	8.2	3.8
Pearson Creek	fair	78	T. 14 N., R. 13 W.	4.7	0
Chamberlain	good	75	T. 13 N., R. 13 W.	5.3	4.0
Elk Creek (poorer in 1983 because of placer mining)	fair	96	T. 13 N., R. 14 W.	4.9	2.4
Keno Creek	fair	93	T. 13 N., R. 13 W.	1.9	1.3
Kennedy Creek	fair	98	T. 13 N., R. 13 W.	2.9	2.5
Union Creek	fair	95	T. 12 N., R. 15 W.	4.1	1.6
Camas Creek	fair	99	T. 12 N., R. 15 W.	4.0	0.9
Ashby Creek, E.F.	fair	104	T. 12 N., R. 16 W.	3.1	1.1
Ashby Creek, W.F.	fair	83	T. 12 N., R. 16 W.	2.6	0.8


CANADA
PACIFIC OCEAN
MEXICO
WASHINGTON
OREGON
IDAHO
MONTANA
N. DAKOTA
S. DAKOTA
WYOMING
NEBRASKA
NEVADA
UTAH
COLORADO
KANSAS
CALIFORNIA
ARIZONA
NEW MEXICO
OKLAHOMA
TEXAS
Overthrust Belt
Garnet Resource Area
NORTH

OVERTHRUST BELT FOR THE GARNET R.A.

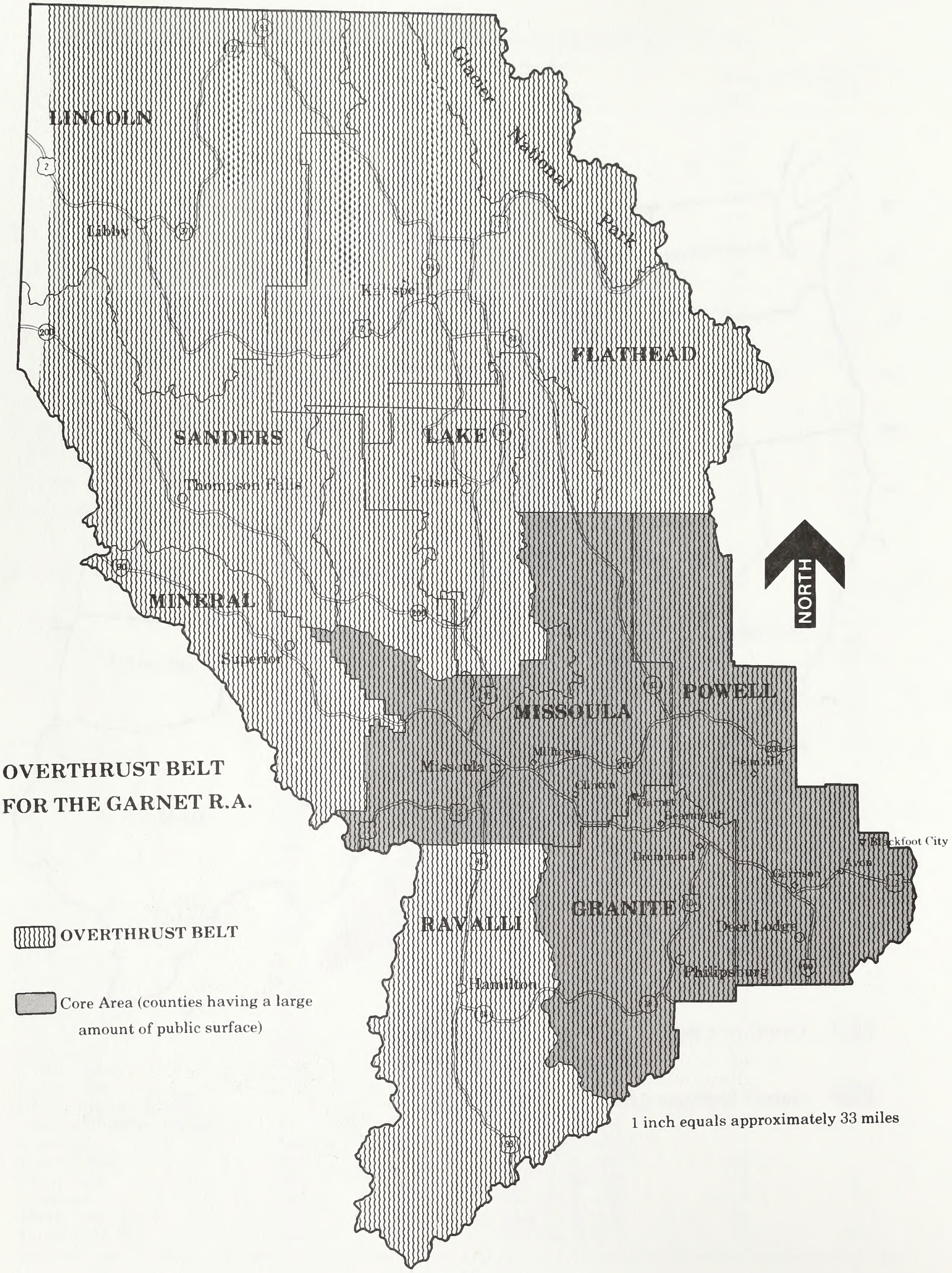


TABLE 3-4

ENERGY AND MINERAL POTENTIAL IN THE GARNET RESOURCE AREA

Energy/Mineral	Potential & Known Reserve Rating*	Acres of Surface	Acres of Subsurface
Oil and Gas	High	—	—
	Medium	133,747	59,926
	Low	11,900	—
Metallic Minerals (gold, silver, copper, lead, zinc, etc.)	High	46,386	19,883
	Medium	87,781	39,767
	Low	11,380	—
Industrial Minerals (phosphote, limestone, barite, etc.)	High	7,300	
	Medium	121,867	
	Low	11,380	
Geothermal	High	5,000	
	Medium	139,527	
	Low	520	
Construction Materials (stone, sand, gravel)	High	3,400	
	Medium	142,147	
	Low	—	

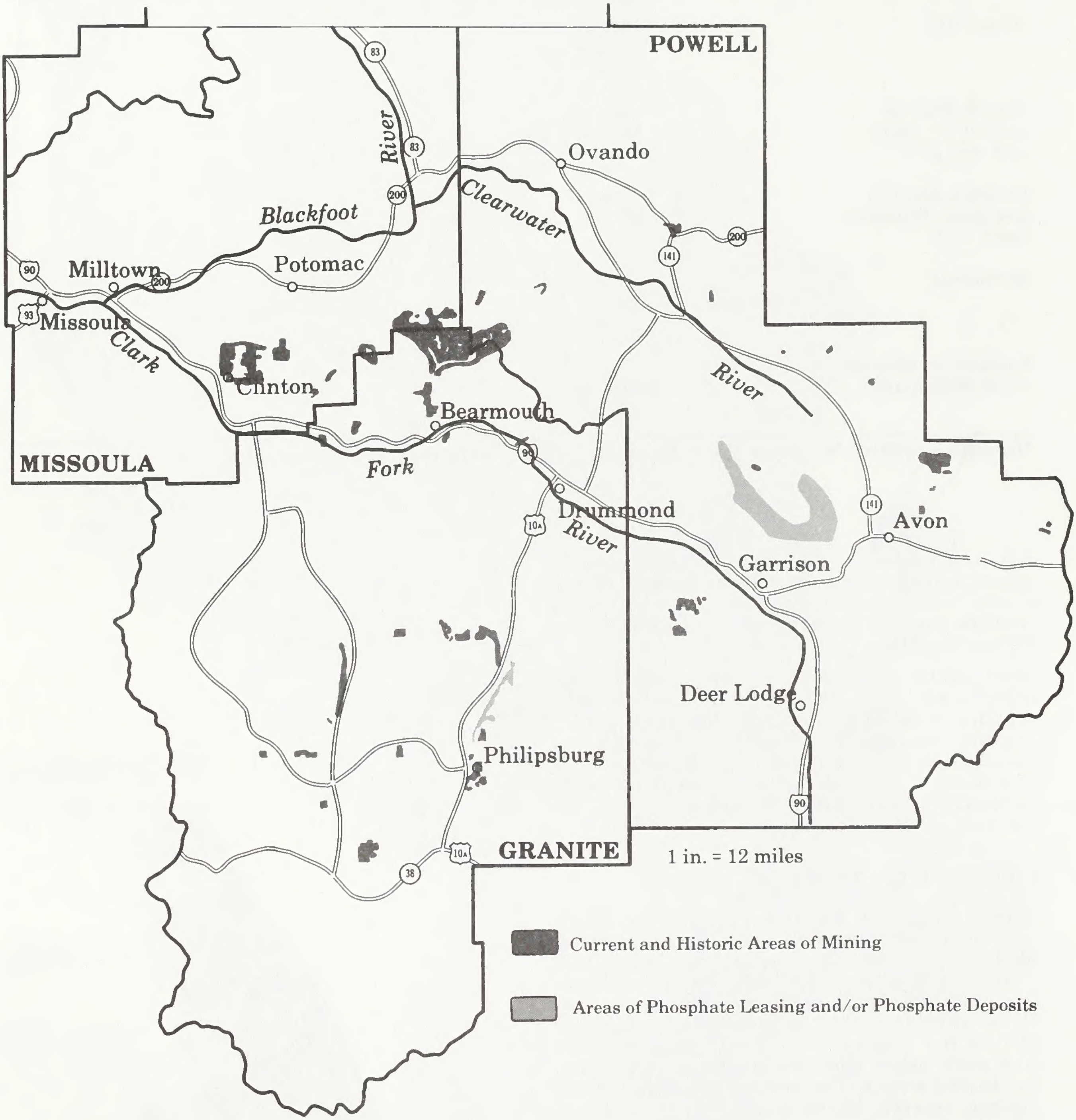
*Rating is established from industry data gathered on GEM forms and from BLM inventory data.

flourite, galena, malachite, azurite, rhodonite, garnet, epidote, quartz, chalcedony, magnetite, and calcite. Areas in the Madison Limestone contain good crystals of calcite, and sapphires can be found in the tributaries of Rock Creek.

Invertebrate and vertebrate fossils occur in the resource area. The Madison Limestone Formation contains invertebrate fossils such as crinoid debris, spirifers, bryozoans, and corals; the Kootenai Formation contains gastropod fossils; and the Swift Formation contains brachiopod fossils. Vertebrate fossils are found in Tertiary sediments at sites throughout the resource area.

Geologic Hazards

Several sites in the resource area contain geologic hazards that may threaten economic loss. The most likely loss would be to land and timber productivity or to a road. Under severe naturally occurring phenomena, these sites could be life or health threatening. These sites are classified into seven categories: alluvial fan, shallow groundwater, rotational bedrock slide, debris slide, earthflow, soil creep, and accelerated erosion. The sites were identified in two geologic surveys, Morrison and Maierle 1978 and Geo/Resource Consultants, Inc. 1983.


POWELL
MISSOULA
GRANITE
Ovando
Milltown
Potomac
Missoula
Clinton
Bearmouth
Drummond
Garrison
Avon
Deer Lodge
Philipsburg
Blackfoot
River
Clearwater
River
Clark
Fork
River
83
200
141
90
93
10A
38
1 in. = 12 miles
Current and Historic Areas of Mining
Areas of Phosphate Leasing and/or Phosphate Deposits

LANDS

The surface ownership for public lands in Granite, Powell, and Missoula counties is 145,660 acres; the subsurface ownership is 213,385 acres. Table 3-5 shows the breakdown of surface acres by county and the breakdown of subsurface acres by county and mineral type.

BLM-managed land includes 349 separate tracts intermingled with private and state lands. Table 3-6 shows the relative number of tracts by size class and acreage. Fifty-three tracts abut national forest. These tracts total about 22,800 acres or 15 percent of the public lands.

BLM-managed lands are only a small percentage of land ownership in Granite, Powell, and Missoula counties. Six percent of Powell County is public land, four percent of Granite, and one percent of Missoula. Table 3-7 shows total surface ownership in the three counties.

Unauthorized use of public land is minimal.

TABLE 3-5
BLM SURFACE AND SUBSURFACE OWNERSHIP BY COUNTY

	Surface Acres	Subsurface Acres*			
		All Min	O&G	Coal	Phosphate
Missoula County	15,115	17,452	17,452	—	—
Granite County	46,259	77,603	77,603	2,240	600
Powell County	84,286	110,256	110,372	23	4,936
Totals	145,660	205,310	205,586	2,263	5,536

*Federal subsurface ownership underlying private surface ownership equals 67,725 acres.

TABLE 3-6
SURFACE OWNERSHIP BY TRACT SIZE

Size/Acreage	Number of Tracts	Approx. Acreage	Percent of Total Tracts	Percent of Total Acreage
15,000 or greater	2	67,000	1	46
4,000 - 14,999	0	0	0	0
1,000 - 3,999	11	25,000	3	17
640 - 999	22	15,000	6	10.5
320 - 639	31	13,000	9	9
160 - 319	61	12,000	18	8
41 - 159	60	5,500	17	4
40 or less	162	8,000	46	5.5
Totals	349	145,500	100	100

TABLE 3-7
SURFACE OWNERSHIP BY COUNTY

County	Total Acres	BLM	FS	State	Plum Creek and Champion	Other Private and Other Federal
Missoula	1,672,320	15,115	676,663	75,525	452,234	451,521
Granite	1,109,120	46,259	661,481	19,247	43,658	338,114
Powell	1,495,680	84,286	638,484	97,617	88,860	588,169
Totals	4,277,120	145,660	1,976,628	192,389	584,752	1,377,804

Several major transportation and utility corridors pass through public lands in the Garnet Resource Area. These include but are not limited to Interstate 90 and State Highway 200, Burlington Northern Railroad, BPA Twin 500 kV transmission line, and Montana Power 230 kV transmission line. The locations of these facilities is shown on the Major Transportation and Utility Corridors map.

RECREATION RESOURCES

Recreation is an important resource in western Montana. The Garnet Resource Area offers many of the important recreational opportunities that western Montana is known for: hunting, visiting historical sites, camping, fishing, prospecting, snowmobiling, etc. Highway 200 and Interstate 90 are major tourist routes leading to the recreation areas of the mountain west. Tourist travel and use in the area is heaviest in summer and fall.

The Garnet Resource Area offers primarily dispersed recreation. Dispersed recreation is defined as recreation that requires a variety of sites yet needs no special facilities. Table 3-8 lists the types of dispersed recreation and their relative frequency of use in the GRA. The BLM has no developed campgrounds in the GRA.

In addition, the resource area has six important recreation areas that receive special management consideration. These Special Recreation Management Areas (SRMAs) require more intensive recreation management and investment. They also require recreation activity plans to provide specific management guidance for recreation and other resources. The SRMAs identified in this plan include:

Garnet National Winter Recreation Trail;

Lewis and Clark Trail, Blackfoot River;
Garnet Ghost Town;
Blackfoot Special Management Area;
Wilderness Study Areas; and
Clark Fork River.

TABLE 3-8
DISPERSED RECREATION ACTIVITIES IN THE GARNET RESOURCE AREA

Activity	Visitor Use
Auto Touring	High
Camping	Moderate
Canoeing	Low
Climbing	Low
Enjoying Scenery or Natural Features	Moderate
Fishing	Low
Hiking	Moderate
Horseback Riding	Moderate
Hunting (big game, small game, upland bird, waterfowl)	High
Interpretive Use (includes historical site visitation)	High
Nature Studies	Moderate
ORV Use (4-WD, dirt bike, snowmobile)	High
Photography	Moderate
Picnicking	Low
River Running	Low
Rock Collecting	Moderate
Ski Touring and Snowshoeing	Moderate
Swimming	Low
Wood Gathering	High

Garnet National Winter Recreation Trail

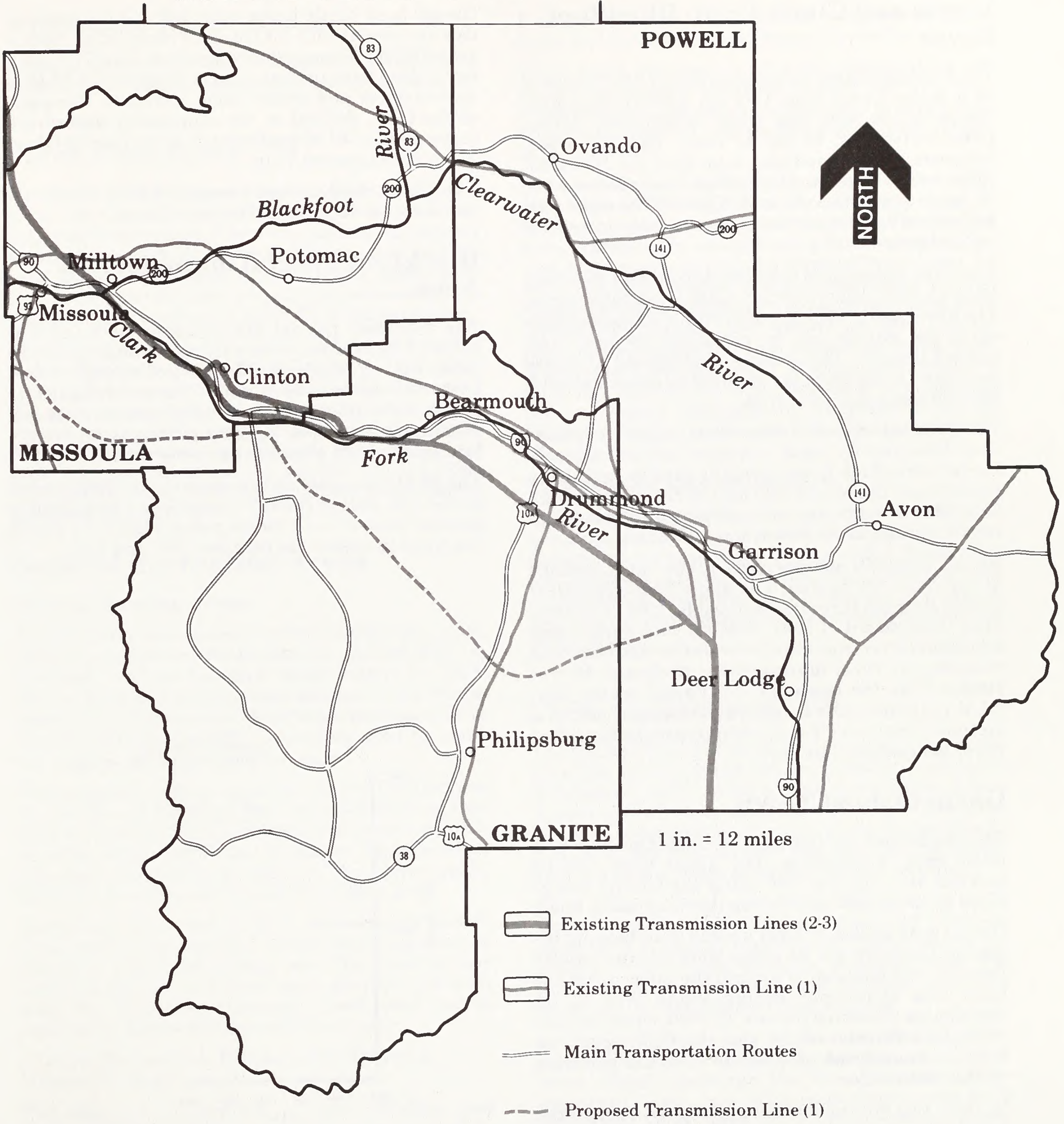
The Garnet National Winter Recreation Trail consists of 30 miles of snowmobile and cross-country ski trails in the Garnet Mountains. The trail starts at Highway 200 near Greenough Post Office. The elevation varies from 4,200 feet at the highway to 7,073 feet on Elevation Mountain.

The trail follows existing roads and is suitable for winter use from January 1 through March 31. During the summer these roads are open to motorized vehicles.

The trail offers both easy and difficult terrain. Therefore both experienced and beginner skiers and snowmobilers can enjoy using the trail.

The trail offers panoramic views of the Blackfoot River and Swan Valley, and the mountains of the Mission and Pintler ranges as well as the Bob Marshall Wilderness. The Garnet Ghost Town is a central point of interest along the trail system.

MAJOR TRANSPORTATION CORRIDORS



Lewis and Clark Trail, Blackfoot River

The Blackfoot River valley historically has been used as a major travel route through western Montana. Indian tribes used this route, which they named Cokahlarish Kit, to get to bison hunting areas. Trappers and missionaries later used the Blackfoot River route. Captain Meriwether Lewis returned to St. Louis via the Cokahlarish Kit trail. The exact trail and campsite locations are unknown in the vicinity of public lands.

The river, adjacent to the historic trail and Montana Highway 200, offers over 100 miles of floatable water. The upper and lower river offer challenging stretches while the middle can be navigated by less experienced floaters. The scenery, highlighted by dense forest and rocky cliffs, is enhanced by abundant wildlife and historical river sites.

The float experience is dependent on the river flow. Low flows usually begin in August and continue into the fall while high flows normally peak in June. Only experienced floaters should use the river during high flow. May through August, with the exception of high runoff periods, is the best time for floating.

Access sites and management on the upper sections of the river are limited. The upper Blackfoot River passes through three tracts of public land. The Montana Department of Fish, Wildlife, and Parks owns additional river tracts that provide the land base for a cooperative river management program. Downstream from the Missoula and Powell county line, BLM participates in cooperative management on a section of the river officially designated the Blackfoot River Recreation Corridor.

Garnet Ghost Town

The abandoned mining town of Garnet is located 45 miles east of Missoula. The ghost town can be reached via Highway 200 using the Garnet Range Road or via Interstate 90 using the Bear Gulch Road.

Garnet was settled in 1895 around gold bearing deposits. The town got its name from the gem stones found in the mountains around the town. After the town was abandoned during World War II, its remoteness preserved the site. In 1960, when fire and vandalism threatened the site, the BLM began an active management program to save the site from further destruction.

In 1971, two mining claims, making up much of the original townsite, were donated to the BLM. An estimated 7,500 to 8,500 people annually visited the site between 1971 and 1980. In the early 1980s, visitors have increased to 12,000 per year. Sixty percent of the use is in June, July, and August. About 40 percent of the visitors are from outside Montana. In 1983, Garnet received visitors from 46 states and 11 foreign countries.

Garnet is currently being managed under a cooperative agreement with the Garnet Preservation Association (GPA), a nonprofit corporation. The GPA solicits its funding from private sources to assist the BLM in management and preservation activities. The goals of the GPA, defined in the cooperative agreement, correspond to BLM goals stated in the Garnet Ghost Town Management Plan.

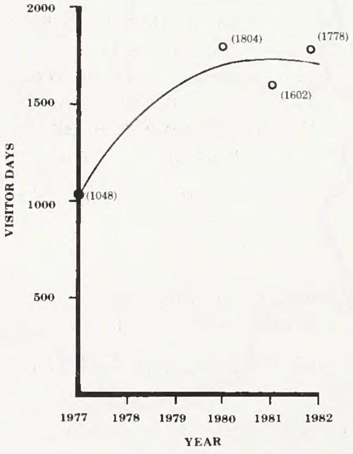
The ghost town has been determined to be eligible for the National Register of Historic Places.

Blackfoot Special Management Area

The Blackfoot Special Management Area (BSMA) covers 42,000 acres in the Garnet Range about 35 miles east of Missoula, Montana. The BSMA is a cooperatively managed road closure designed to improve the quality of elk hunting, protect soils and vegetation, and gain hunting privileges on private lands previously closed to the general public.

The BLM conducted an intensive study of hunter use in the area during the 1977 season, and less detailed surveys were done in recent years. Figure 3-1 shows the trend in visitor use between 1977 and 1982.

FIGURE 3-1
VISITOR USE TREND
BLACKFOOT SPECIAL MANAGEMENT AREA



Wilderness Study Areas

These areas are described in detail in the Wilderness Resources section of this chapter and Appendixes O and P.

Clark Fork River

The Clark Fork River corridor is a historical transportation route. It was part of the Mullan Road and major railroad routes. Early mining activity opened up the Clark Fork Valley to settlement, and agricultural development soon followed. As a result most land in the river corridor is in private ownership with only scattered tracts still under BLM management.

The Clark Fork River is suitable for boating from the Kohrs Bend, upstream from Garrison, to Bonner Dam, a distance of 86 river miles. Physical access to the river is generally good. However, legal access needs to be acquired in some areas. Detailed information on access sites, approximate float times, and estimated recreation use are available in the Management Situation Analysis available in the Garnet Resource Area office.

General Recreation Areas

Walk-in Hunting Areas

A cooperative management effort between the BLM, private landowners, Forest Service, and MDFWP to establish walk-in hunting areas began in 1974. Eleven walk-in hunting areas similar to the Blackfoot Special Management Area were created totalling 104,140 acres. Access is controlled by gates on existing roads.

Management of these areas is designed to improve the quality of hunting, open up additional private land to hunting, reduce erosion, and protect wildlife security areas. Each area is unique and therefore managed differently to achieve the above goals. Table 3-9 describes each walk-in hunting area.

Recreation use of the walk-in areas is substantial; most involve hunting and related activities such as camping, horseback riding, etc. The heaviest use occurs in the fall and most users are from the local area. Use has been increasing each year and is expected to follow this trend in the future.

Hiking, Horseback Riding, and Off-road Vehicle Trails

The Montana Department of Fish, Wildlife, and Parks (MDFWP 1983) noted that, as compared to other areas of Montana, the Missoula area has the state's highest demand for nonmotorized trails, the second highest demand for camping and cross-country ski areas, and the fourth highest demand for motorized vehicle trails. BLM-administered lands contain many trails appropriate for such uses.

Many historic trails and wagon roads came into being during early mining and sheep ranching periods. The fire protection efforts of the Blackfoot Forest Protection Association (BFPA) maintained these trails and constructed additional fire trails.

These trails are open to all types of recreation use unless specifically closed to vehicle use. Hunters, snowmobilers, and skiers are the main groups using these trails. The trails for the most part are not signed or maintained.

Snowmobiling as a sport has increased rapidly in the late 1960s and early 1970s. Gradual decreases in snowmobile use are evident since then. The Garnet Range offers many areas to enjoy this form of recreation. Most trails converge on Garnet Ghost Town. In 1971, an estimated 6,000 snowmobilers visited Garnet. After this peak year, snowmobile visits have leveled off at about 1,200 visitors per year. In contrast, cross-country skiing is increasing in the area. Winter trails are managed cooperatively with the MDFWP. Interest has been expressed in expanding the cooperative management programs to include Lubrecht Forest lands owned by the University of Montana.

Undeveloped Recreation Sites

Undeveloped recreation sites are areas suitable for camping and picnicking; but facilities such as toilets and garbage cans have not been provided. These sites are scattered throughout the resource area and receive the greatest use in the summer and fall. A listing of the undeveloped recreation sites is available in the MSA.

VISUAL RESOURCES

The Garnet Resource Area lies in the physiographic province known as the Northern Rocky Mountains (Fenneman 1938). Areas of high scenic value, Class A, were identified on one percent of the resource area; areas of moderate scenic values, Class B, were identified on ninety-four percent; and areas of low scenic values, Class C, were identified on five percent.

Class A lands have a landscape character of high, rugged, and forested mountains; tree-lined river bottoms; river gorges; or major lakes. Class C lands are usually valley floors, foothills, or plains with few trees and water features. Lands between these two landscape characters are Class B lands.

Areas visible from major travel routes and sensitivity levels were also evaluated. A combination of these three values determines the Visual Resource Management (VRM) class. Wilderness study areas were designated VRM Class I to retain the existing scenic values. Table 3-10 lists the number of acres in each VRM class.

The resource area has several scenic corridors or zones. The visually sensitive scenic corridors are along the Blackfoot and Clark Fork rivers, Rock Creek, the Anaconda/Pintler Scenic Route, and the Helmville/Avon Road; Garnet, Coloma, Chicken Run Spring, Southern Cross Spring, Sand Park, and Reynolds City are classified as visually sensitive areas.

TABLE 3-9
WALK-IN HUNTING AREAS IN THE GARNET RESOURCE AREA

Name	Approximate Size	Visitor Use	Road Closure Dates	Year Started	Type	Admin.	Reason for Closure*
Morrison Peak Special Management Area (SMA)	24,000 ac. (40 ac. BLM)	High	Sept. 1 - Nov. 30	1976	Formal Cooperative (23 Cooperators)	MDFWP	1, 2, 3
Marcum Mtn. Special Management Area	8,000 ac. (4,560 ac. BLM)	High	Sept. 1 - Nov. 30 on private land; Sept. 1 - April 30 on BLM	1974 (Formal since 1977)	Formal Cooperative (22 Cooperators)	MDFWP and BLM	1, 2, 3, 4
Deer Cr.	2,600 ac. (400 ac. BLM)	Moderate	Sept. 1 - Nov. 30	1976	Admin. closure of BLM road	BLM	2, 3
Wales, Yourname Creeks	15,400 ac. (14,120 ac. BLM)	Low	Yearlong	1974	Formal Cooperative on boundary road (BLM & BN)	MDFWP and BLM	2, 3
McElwain Douglas Creeks	8,500 ac. (7,840 ac. BLM)	Moderate	Murray Cr. Rd., Deer Gu. Spur & Trail Spring Spur closed Sept. 1 - Nov. 30. McElwain Fire Rd., Boiler connecting road & Snowcap Trail closed yearlong except open to over snow vehicles Jan. 1 - April 30.	1978 for Murray Cr. Rd. 1976 for Deer Gu. & Trail Spring 1974 for remaining roads.	BLM Admin. closure	BLM	2, 3, 5
Blackfoot SMA	42,000 ac. (9,500 ac. BLM)	High	Sept. 1- Nov. 30 Elk logging study area portion, yearlong	1974 (Formal since 1976)	Formal Cooperative (10 Cooperators)	MDFWP and BLM	1, 2, 3, 5, 7
Ram Mtn.	11,100 ac. (4,800 ac. BLM)	Moderate	Closed yearlong	1974	Informal Cooperative (3 Cooperators)	BLM	1, 2, 3, 4, 6

Name	Approximate Size	Visitor Use	Road Closure Dates	Year Started	Type	Admin.	Reason for Closure*
W.F. Buttes	18,000 ac. (1,160 ac. BLM)	Low	General big game season	1976	Informal Cooperative (10 Cooperators)	USFS and BLM	1, 2, 3
W.F. Braziel, Gobbler's Knob, Dry Cottonwood Creek	15,000 ac. (12,000 ac. BLM)	Moderate	Sept. 1 - Nov. 30	1978	Informal Cooperative (3 Cooperators)	BLM	1, 2, 3
Summit Cabin	900 ac. (870 ac. BLM)	Moderate	Sept. 1 - Nov. 30	1980	BLM admin. closure	BLM	2, 3, 7
Karshaw Mtn.	240 ac. (240 ac. BLM)	Low	Yearlong	1978	BLM admin. closure	BLM	2, 3, 7
Keno Cr. Spur	400 ac. (400 ac. BLM)	Moderate	Yearlong	1982	BLM admin. closure	BLM	2, 3, 7
TOTAL		104,140 acres					
TOTAL BLM		46,430 acres					

*Reasons for Closure

1. To gain hunting privileges on private land.
2. To improve the quality of hunting.
3. To prevent vehicular damage to soils & vegetation.
4. To reduce harassment of wintering big game.
5. To reduce harassment of elk on spring/summer/fall range.
6. To reduce pressure on big horn sheep herd.
7. To provide security for big game after logging.

TABLE 3-10
VISUAL RESOURCE MANAGEMENT CLASSES

VRM Class	Description	Acres	Percent
I	Natural changes and very limited management activity allowed.	27,737	19%
II	Management activity should not be evident in the landscape.	1,455	1%
III	Management activity should not attract attention from the landscape.	24,800	17%
IV	Management activity may be a major element of the landscape but should follow existing line, form, color, and texture.	90,297	62%
V	Management activity should improve the altered landscape.	1,372	less than 1%

CULTURAL RESOURCES

Cultural resources range from prehistoric campsites dating from 10,500 years ago to the Garnet Ghost Town, which was abandoned during World War II. Most of the cultural resources, 40 percent, are related to the mining activity of the 1864 to 1942 period. About 37 percent are prehistoric campsites. Other sites are townsites, homesteads, logging-related sites, camps, steam-powered mill sites, and historical graves and cemeteries.

Presently, no cultural property on public lands in the GRA is listed on the National Register of Historic Places. Garnet Ghost Town and other properties have been determined to be eligible. A total of 43 cultural properties on public lands are judged as potentially eligible for the National Register. Blackfoot City, the Mullan Road, the Gold Creek Historic District, the Garnet Historic District, Bearmouth, and the Granite Historic District include portions of public lands (MT, FGC 1975). See Appendix G for a description of the Cultural Resource Management Procedures.

WILDERNESS RESOURCES

An intensive inventory completed by the BLM in 1981, identified four Wilderness Study Areas (WSAs). These are Wales Creek (MT-074-150), Hoodoo Mountain (MT-074-151A), Gallagher Creek (MT-074-151B), and Quigg West (MT-074-155).

Quigg West is located in Granite County; Wales Creek, Hoodoo Mountain, and Gallagher Creek are in Powell County. They cover 27,737 acres or about 19 percent of the public land in the GRA. Table 3-11 lists the WSAs and their acreage.

Wales Creek and Hoodoo Mountain meet the size criteria of 5,000 acres as stated in the *Wilderness Inventory Handbook* (USDI, BLM 1978). Gallagher Creek is being studied for its wilderness qualities under Section 202 of FLPMA because it is less than 5,000 acres. Quigg West is studied as a possible tack-on to the 60,050-acre Quigg RARE II area (Q1807). A wilderness recommendation for the tack-on would be contingent on the Quigg RARE II area being recommended for wilderness.

Wilderness Opportunities

The National Wilderness Preservation System (NWPS) contains 271 units and covers 80,497,805 acres. Of this, 56,521,416 acres (about 70 percent) are in Alaska and 23,976,389 acres in the other 49 states.

A three-state area including Montana, Idaho, and Wyoming make up the affected region for the purposes of this study. Table 3-12 lists by state the areas that have been designated wilderness by Congress, those that have been endorsed by the President for wilderness status, and those areas that are still being studied.

About 51 percent of the acreage still being studied in the three-state area is on BLM-administered land. The Bear Trap Canyon in Madison County, Montana contains 6,000 acres and is the first BLM-administered wilderness area.

Great Falls is the only standard metropolitan statistical area within a five-hour drive of the WSAs located in the resource area. Missoula, with a county population of 75,432, is also within a five-hour drive of the WSAs. The wilderness opportunities near both cities are plentiful and varied (see Table 3-13). Appendix P contains a summary of the status of wilderness and wilderness study areas in Montana.

The National Wilderness Preservation System (NWPS) contains mainly examples of high elevation mountain ecosystems and alpine, subalpine, and glacial landscapes. Only 50 of the 241 basic ecosystems listed by Bailey-Kuchler (Davis 1980; Kuchler 1964; USDA FS 1976, 1978a) are represented. An additional 62 ecosystems will be added to the NWPS if the presidentially endorsed areas are added. The areas still being studied contain an additional 78 ecosystems. Appendix Q outlines the characteristics of the ecosystem represented in the wilderness study areas in the GRA.

TABLE 3-11

WILDERNESS STUDY AREAS IN THE GARNET RESOURCE AREA

WSA Name	WSA Number	Acreage	Study Authority
Wales Creek	MT-074-150	11,580	FLPMA, Sec. 603
Hoodoo Mountain	MT-074-151A	11,380	FLPMA, Sec. 603
Gallagher Creek	MT-074-151B	4,257	FLPMA, Sec. 202
Quigg West	MT-074-155	520	FLPMA, Sec. 202
Total		27,737	

TABLE 3-12

REGIONAL WILDERNESS OPPORTUNITIES

	Designated Wilderness Areas			Presidentially Endorsed Areas			Further Study Areas		
State	Agency	Number of Areas	Acres	Agency	Number of Areas	Acres	Agency	Number of Areas	Acres
Montana	FS	12	3,666,342	NPS	2	1,084,660	FS	23	1,207,769
	FWS	3	64,997	FS	32	681,355	BLM	36	437,642
	BLM	1	6,000	FWS	15	161,580			
Idaho	FS	5	2,944,435	FS	17	1,240,424	FS	11	571,931
	NPS	1	43,243				BLM	54	1,326,799
Wyoming	FS	6	2,193,750	FS	17	627,100	FS	7	414,870
				NPS	2	1,848,744	BLM	36	565,260

BLM — Bureau of Land Management
FS — Forest Service
FWS — Fish and Wildlife Service
NPS — National Park Service

TABLE 3-13

PROXIMITY OF WILDERNESS TO POPULATION CENTERS

Status	Population Center	Total Wilerness Acres Within a 5-Hour Travel Time	State	BLM Number of Areas	BLM Acres	Other Agencies Number of Areas	Other Agencies Acres
Statutory Wilderness	Missoula	8,313,760	Montana	1	6,000	13	3,164,646
			Idaho	—	—	5	2,944,435
			Wyoming	—	—	3	1,595,547
			Oregon	—	—	3	603,132
	Great Falls	4,387,934	Montana	1	6,000	12	3,292,917
			Idaho	—	—	1	1,089,017
Presidentially Endorsed Areas	Missoula	3,656,217	Montana	—	—	29	1,365,702
			Idaho	—	—	39	2,105,559
			Wyoming	—	—	6	123,876
			Oregon	—	—	1	34,000
			Washington	—	—	1	27,080
	Great Falls	2,569,180	Montana	—	—	31	1,392,102
			Idaho	—	—	1	163,857
			Wyoming	—	—	1	1,013,221
Other Study Areas	Missoula	3,320,477	Montana	19	220,783	27	1,262,514
			Idaho	7	372,993	16	1,165,057
			Oregon	3	18,660	13	280,470
	Great Falls	1,484,908	Montana	34	394,477	11	1,014,066
			Idaho	2	21,255	1	6,700
			Wyoming	2	48,460	—	—

Wilderness Supply and Demand

Wilderness areas provide opportunities for primitive types of recreation and for enjoyment of a variety of ecosystems in their natural state. The demand for these types of recreational experiences has increased since the mid-1960s. There was a threefold increase in hiking and backpacking by the late 1970s. Use has leveled off in the 1980s in most cases except snow-based activities, day use, and family recreation, which continue to increase (Spencer et al. 1980).

As more people seek recreation in a fixed amount of wilderness areas, the chance to have a wilderness experience declines. In 1971, a survey of hikers in wilderness areas showed more than half were dissatisfied with the opportunities for solitude (Stankey 1971). Another survey found that managers of existing wilderness areas considered 49 percent of the areas to be crowded (Cole and Washburne 1980).

Wilderness use increases in the summer months. Most areas in the NWPS are high elevation and best suited for summer use. The NWPS contains few low elevation areas that could provide year-round use.

Wilderness in the Local Area

The local area is considered to be Powell and Granite counties. This is the site of the BLM wilderness study areas. In addition these counties contain portions of four designated wilderness areas, three proposed wilderness areas, and three areas still being studied. Table 3-14 lists the areas by county.

Consistency with Other Plans

The BLM and the Deerlodge National Forest have agreed to consider complementary management alternatives for contiguous lands and to coordinate the recommendations that are submitted to Congress.

The BLM, Forest Service, and the Montana Governor created the Natural Resources Council to discuss pending decisions and natural resource issues of mutual concern. Associated with the Natural Resources Council is an expanded committee of groups interested in forest resources, the Governor's Ad Hoc Committee on Forest Resources. The committee discusses forest resource issues, including wilderness, and attempts to reach a consensus or a balanced opinion on ways to resolve the issues. Participation in these groups allows for coordination and consistency with other agency programs.

Neither Powell nor Granite counties' comprehensive plans address the issue of wilderness designation.

TABLE 3-14

EXISTING AND PROPOSED WILDERNESS AREAS AND AREAS UNDER WILDERNESS STUDY

County	Type	Area Name	Unit Number	Agency
Powell	Existing Wilderness	Bob Marshall	NF005	FS
		Scapegoat	NF073	FS
	Proposed Areas	Great Bear, Bob Marshall, Scapegoat, Swan	B1485	FS
		Clearwater/Monture	Q1485	FS
	Further Study Area	Flint Range	1428	FS
		Dolus Lake	1429	FS
		Sapphires	1421	FS
		Wales Creek	MT-074-150	BLM
		Hoodoo Mountain	MT-074-151A	BLM
		Gallagher Creek	MT-074-151B	BLM
Granite	Existing Wilderness	Anaconda/Pintler	NF003	FS
		Welcome Creek	NF103	FS
	Proposed Areas	Quigg (Slide Rock)	Q1807	FS
	Further Study Areas	Flint Range	1428	FS
		Dolus Lake	1429	FS
		Sapphires	1421	FS
		Quigg West	MT-074-155	BLM

Description of Individual Areas

Each wilderness study area is described briefly. A more detailed description on each area can be found in Appendix O.

Wales Creek

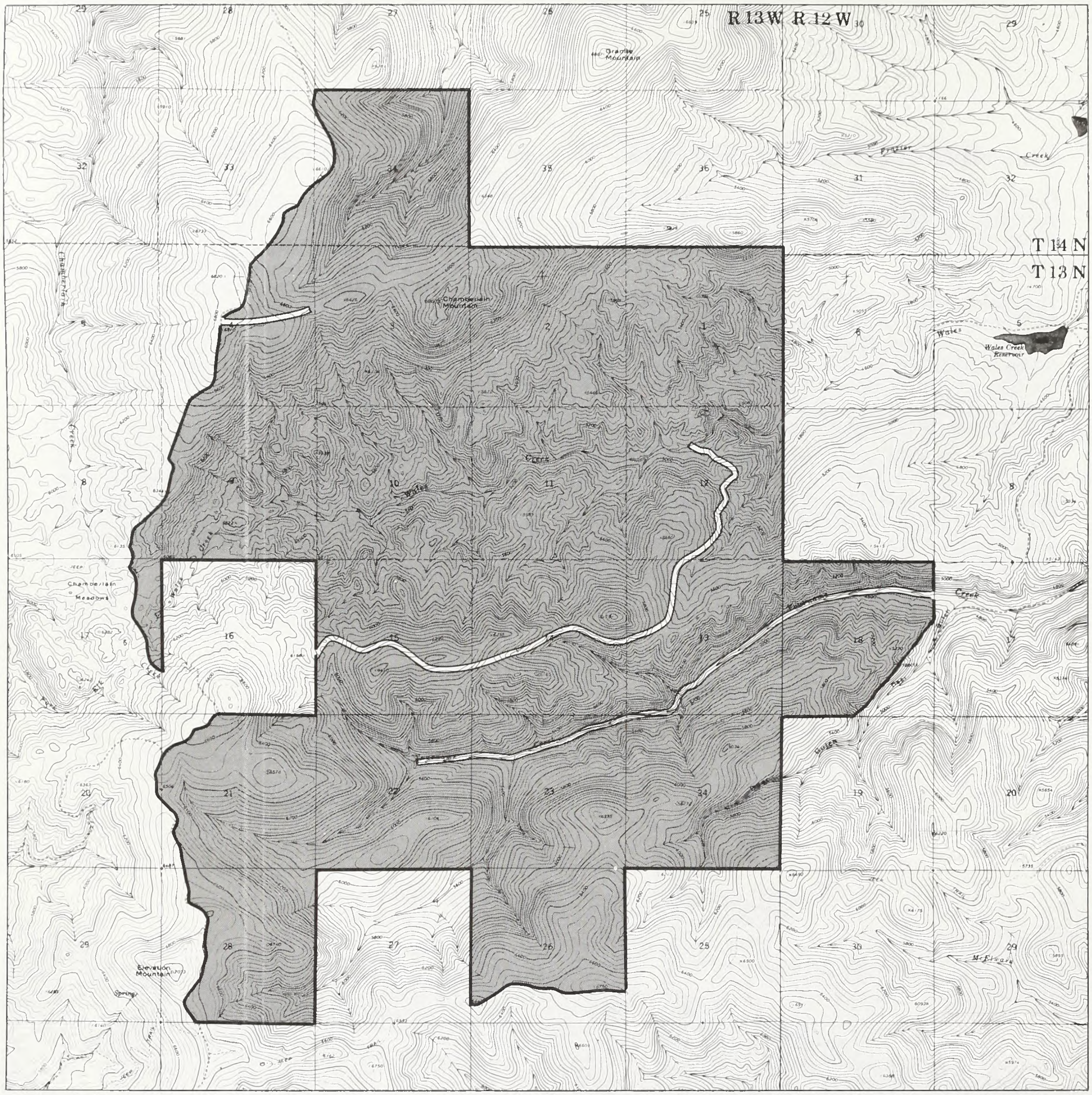
The Wales Creek WSA lies in the western portion of the Garnet Mountain Range about 40 miles east of Missoula, Montana. Highway 200 leads to two access routes on the west, the Cap Wallace Gulch Road and the Garnet Range Road. Highway 271 leads to an access route on the east up McElwain Creek (see the Wales Creek WSA Topographic map).

The Wales Creek WSA is about four miles wide by six miles long and covers 11,580 acres. The WSA is bounded by private land on the east, McElwain fire road on the south, the Chamberlain Creek and Elevation Mountain fire road on the west, and state and Plum Creek Timber Company lands on the north. The WSA has cherrystemmed roads on the ridge separating Wales and Yourname creeks and in the north on Chamberlain Mountain. A patented placer mining claim along Yourname Creek also protrudes into the WSA.

The topography ranges from 4,680 feet on Wales Creek to over 7,000 feet on Elevation Mountain. Chamberlain Mountain on the north side of the WSA is 6,860 feet high.

The WSA offers several fishable streams flowing east into the Blackfoot River. The streams produce the native cutthroat trout. In addition, the Wales Creek drainage has several thermal springs.

The WSA is heavily forested with stands of spruce, lodgepole pine, Douglas-fir, and subalpine fir. Mining, grazing, and firefighting activities have left structures and other imprints of human activity on portions of the WSA. However, the majority of the WSA is essentially undisturbed by human activity.



— WSA Boundary

▨ WSA

WALES CREEK TOPOGRAPHIC MAP

NORTH

0 1 2 Miles

0 1 2 3 Kilometers

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The WSA contains habitat for moose, elk, deer, beaver, black bear, and mountain lion. The WSA also is used by nesting goshawks. Recreational use of the WSA includes hunting, fishing, hiking, cross-country skiing, camping, and snowmobiling.

Hoodoo Mountain

The Hoodoo Mountain WSA lies in the Garnet Range between Avon and Helmville, Montana. Access is from Highway 141 at Nevada Lake Reservoir. The northern, western, and southern boundaries are roads and private and state lands. The eastern boundary is shared with the Gallagher Creek 202 WSA (see the Hoodoo Mountain WSA Topographic map).

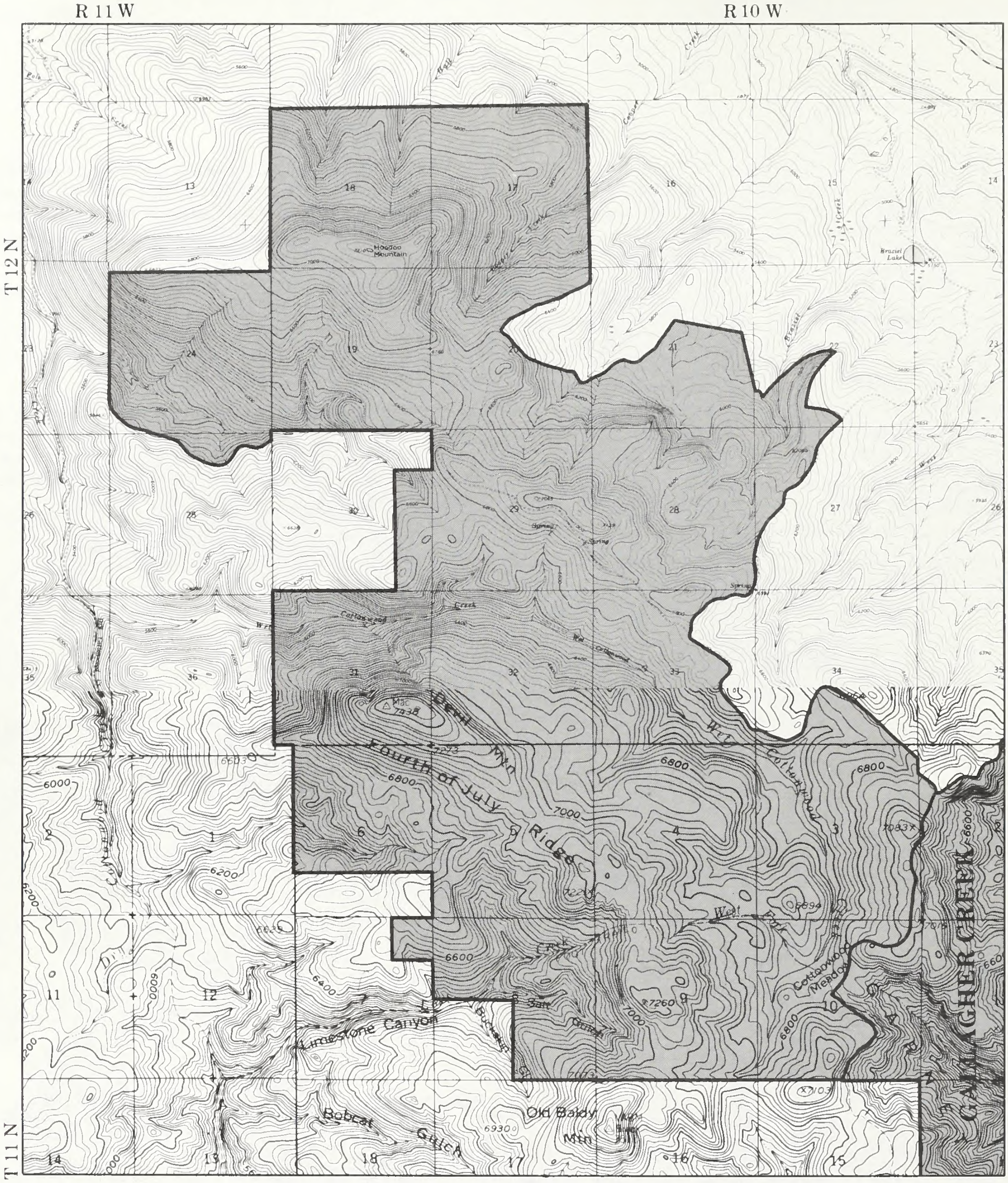
The Hoodoo Mountain area is about three miles wide by six miles long and covers 11,380 acres. The width narrows at one point to less than a mile.

The elevations range from 7,438 feet at Devil Mountain to 5,200 feet on Cooper Creek. Hoodoo Mountain and Fourth of July Ridge are also visible landmarks.

The WSA is a forested area dotted with rock outcrops, open grassland parks, and numerous large and small wet meadows. High, open sites offer spectacular views of broad mountain valleys and distant mountain ranges.

The WSA contains habitat for elk, moose, deer, black bear, porcupine, grouse, and eagles. Martin, fishers, wolverine, and mountain lion also use the area. Wet Cottonwood Creek contains a fishable population of cutthroat trout.

Grazing and logging have left only a few imprints of human activity on the WSA. Recreational use of the area includes hunting, hiking, rock climbing, and camping. Limited snowmobile use occurs in the WSA.



— WSA Boundary

▨ WSA

HOODOO MOUNTAIN TOPOGRAPHIC MAP

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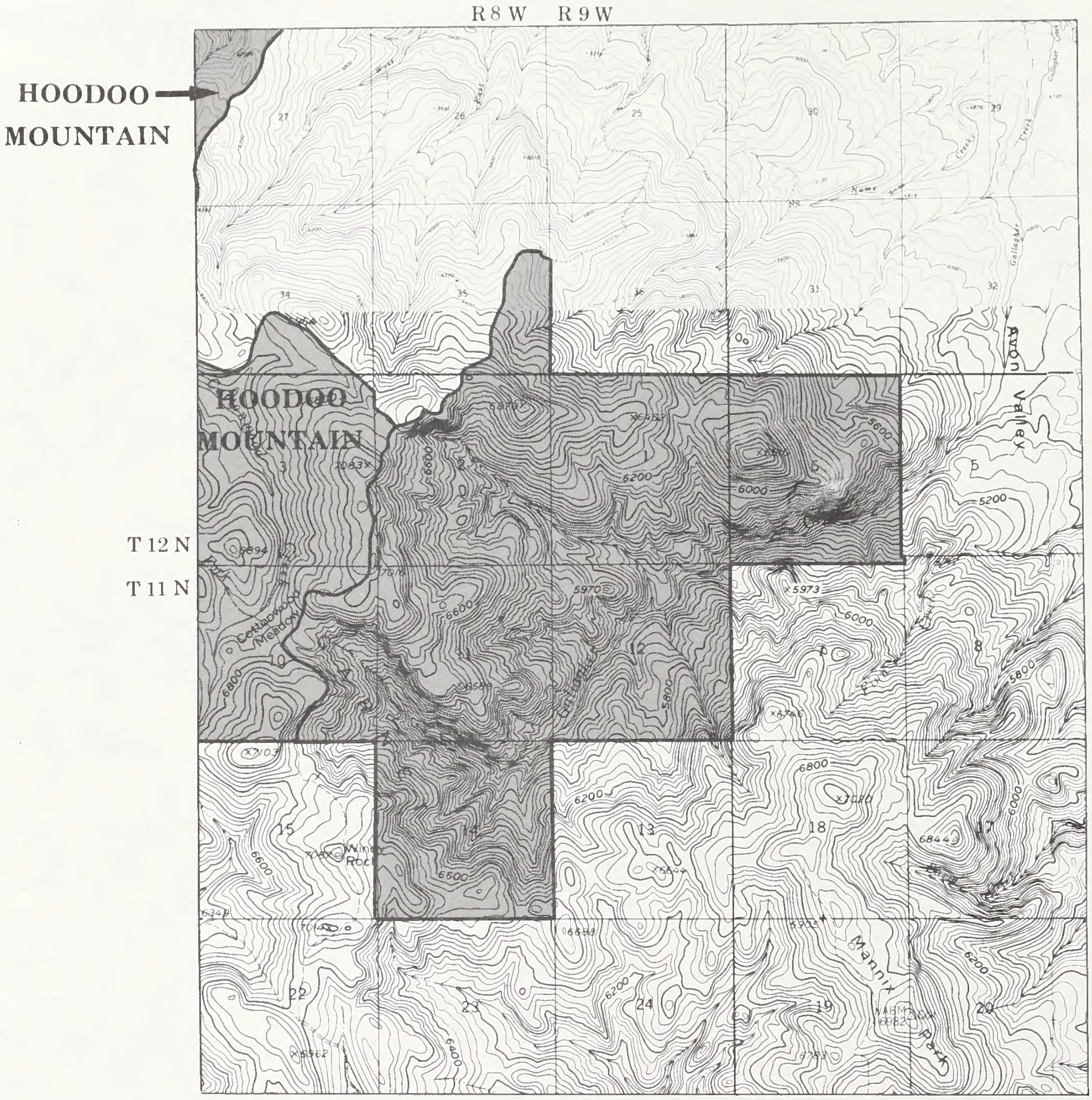
Gallagher Creek

Gallagher Creek 202 WSA lies just east of the Hoodoo WSA between Helmville and Avon, Montana. Access is from Highway 141 at Nevada Lake Reservoir. The WSA is bordered on the north by the Indian Creek Road, on the west by the Hoodoo Mountain fire road, and on the east and south by private lands (see the Gallagher Creek 202 WSA Topographic map).

The topography of the 202 WSA is quite rugged ranging from 7,016 feet to 5,240 feet in the Gallagher Creek drainage. The 202 WSA is about three miles wide by three miles long and contains 4,257 acres.

The Gallagher Creek drainage is forested and also contains narrow meadows and steep rocky bluffs. The creek itself contains the native cutthroat trout. The 202 WSA contains habitat for elk, deer, black bear, mountain lion, and moose. The 202 WSA contains a limited amount of peregrine falcon habitat.

Grazing and prospecting activities have left a limited number of human imprints. Recreational use of the 202 WSA includes hiking, hunting, camping, and rock climbing. The 202 WSA contains specimens of petrified wood to attract recreationists.



GALLAGHER CREEK TOPOGRAPHIC MAP

— WSA Boundary

▨ WSA

NORTH

0 1 2 Miles

0 1 2 3 Kilometers

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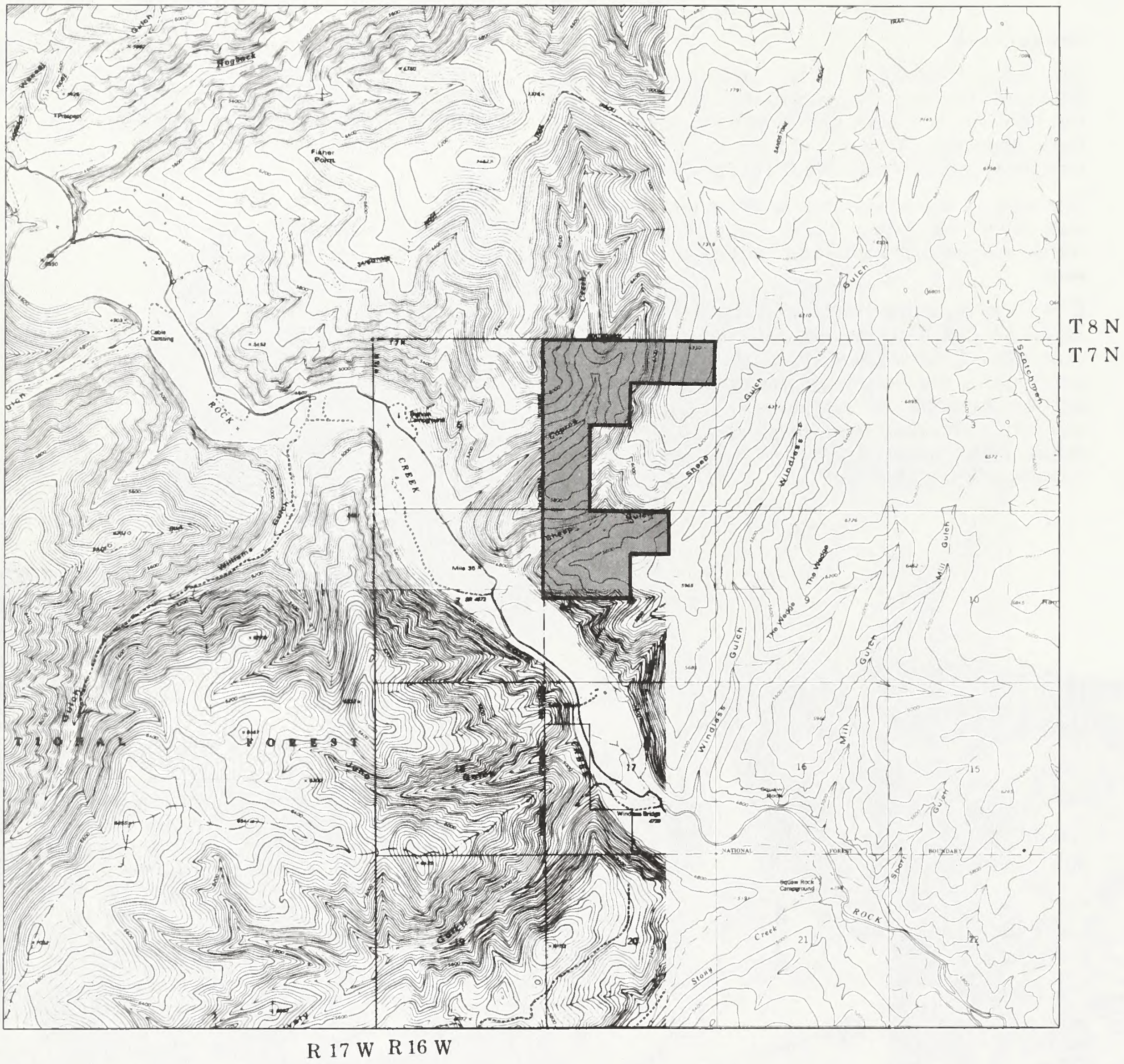
Quigg West

The Quigg West 202 WSA is a tack-on to the Forest Service 60,050-acre Quigg (Slide Rock) RARE II area (Q1807). The 202 WSA lies 20 miles west of Philipsburg, Montana. Access is via the Rock Creek Road (see the Quigg West 202 WSA Topographic map).

The tack-on is one-half mile wide by two miles long and covers 520 acres. National forest borders the north and west; private land borders the south and east.

Elevation in Quigg West varies between 4,920 feet and 6,930 feet. The area contains two narrow, steep drainages, Capron Creek and Sheep Gulch. The forested ridges are dotted with open talus areas. The tack-on is essentially untouched by human activity and is in a natural state. Heavy vegetation and steep slopes make travel difficult, therefore recreational opportunities are limited.

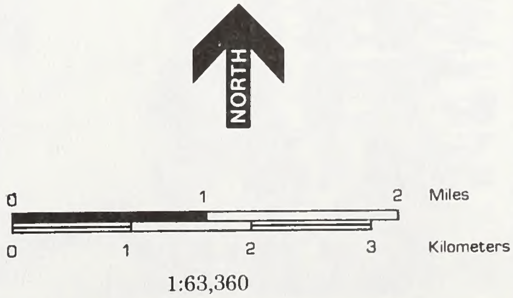
The tack-on offers yearlong habitat for bighorn sheep, as well as habitat for elk and mule deer. It is part of the Ram Mountain walk-in hunting area, which is closed yearlong to motorized vehicles.



QUIGG WEST TOPOGRAPHIC MAP

— WSA Boundary

▨ WSA



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FOREST RESOURCES

Forest stands on public lands in the Garnet Resource Area occur at elevations from 3,600 to 7,000 feet. Precipitation below 5,000 feet is less than 20 inches per year; between 5,000 and 6,200 feet it averages 20 inches per year; and above 6,200 feet it averages 30 inches per year. Soils vary considerably in depth, texture, and fertility. This variability in abiotic factors creates a mosaic of vegetative communities. These communities or habitat types are distinguished by distinct combinations of overstory and understory vegetation.

The heirarchical classification of vegetative communities as described in *Forest Habitat Types in Montana* (USDA, FS 1977) is used to evaluate site potential of forest lands in the resource area. Table 3-15 lists the habitat types identified and gives timber productivity data for each. Approximately half the CFL produces 20 to 49 cu ft/ac/yr and half produces 50 to 84 cu ft/ac/yr. Although complete acreage data for each habitat type is not available, inventory data shows that the Douglas-fir series occupies over half of the forested area and produces about 60 percent of the annual harvest volume.

Six commercial tree species occur in the GRA. Table 3-16 shows the relative harvest volume of each species during a seven-year period.

The present age structure of the stands is old-growth surplus, with over 50 percent of the forested acreage over 150 years old. The forest industry in Montana is generally set up to harvest old-growth timber and produce lumber and plywood from large diameter logs.

TABLE 3-16
TIMBER SOLD IN THE GARNET RESOURCE AREA

Species	% Volume Sold 1977-1983
Alpine fir	3%
Douglas-fir	59%
Engelmann spruce	4%
Lodgepole pine	28%
Ponderosa pine	3%
Western larch	3%

The public lands in the GRA have been subject to a continuous timber sale program since 1944. The total volume sold to date is 228,329 mbf with a stumpage value of $4,772,988. Within this period, there has been an average of 4.6 sales per year. Most of these sales were sold by competitive bidding, and all of the sales that were offered were sold.

FLPMA directs that the timber resource be managed for a sustained yield and even flow of forest products. Therefore, the harvest of old-growth timber is not accelerated even though an economic analysis shows that the annual growth in old-growth, unmanaged stands is considerably less than in managed stands.

Although harvest level in the GRA from 1977 to date has been designated at 6,500 mbf/year, actual harvest volumes averaged 5,300 mbf/year. Net volumes in the unmanaged stands will vary from 3 to 25 mbf/acre. Average inventoried volume is 7 mbf/acre.

TABLE 3-15
FOREST HABITAT TYPES AND PRODUCTIVITY DATA FOR THE GRA

Series	Habitat Types	Comparative Yield Capability	Yield Capability cu ft/ac/yr @ CMAI
Douglas-fir	bluebunch wheatgrass	Low	20-35
Douglas-fir	Idaho fescue	Low	20-35
Douglas-fir	rough fescue	Low	20-35
Douglas-fir	ninebark	Moderate-Low	30-60
Douglas-fir	blue huckleberry	Moderate-Low	30-55
Douglas-fir	twin flower	Moderate-Low	35-50
Douglas-fir	snowberry	Moderate-Low	30-45
Douglas-fir	pinegrass	Moderate-Low	30-60
Alpine fir	dwarf huckleberry	Moderate-Low	30-55
Alpine fir	grouse huckleberry	Moderate-Low	30-55
Alpine fir	twin flower	Moderate	30-85
Alpine fir	menziesia	Moderate	40-85
Alpine fir	blue huckleberry	Moderate	40-85
Alpine fir	beargrass	Moderate	40-85
Alpine fir	queencup beadlily	High	85+
Alpine fir	sweetscented bedstraw	High	85+
Alpine fir	bluejoint	High	85+

Road construction averages 1.5 miles of road built for every million board feet of timber harvested. Through the timber sale program the GRA has constructed over 300 miles of road, most of which are maintained as a permanent transportation system and used by the public.

Reforestation

One measure of success of a timber management program is how quickly the harvested forest land is adequately restocked with acceptable tree species. Through a program called TPCC forest sites are evaluated for regeneration potential. Table 3-17 summarizes the CFL base acreage into four broad TPCC categories, and Appendix C details the full TPCC classification system.

TABLE 3-17
TPCC CATEGORIES AND ACREAGES

TPCC Category	BLM Acres in GRA
CFL* Withdrawn from base	(3,186 acres)
CFL Restricted	43,322 acres
CFL Restricted with 30 year regeneration lag	11,542 acres
CFL Nonproblem	57,606 acres
CFL Base Acres	112,470 acres

*Commercial Forest Land

The withdrawn category contains sites that are too fragile to log. The restricted category contains sites where natural regeneration should occur within 15 years with shelterwood cutting, good seedbed preparation, and protection from grazing in areas where cattle concentrate. The restricted with 30-year regeneration lag category contains sites where natural restocking should occur within 30 years; and underplanting prior to final shelterwood cut is recommended. The nonproblem category contains sites where regeneration can be established within 15 years.

Reforestation through silvicultural treatment on habitat types in the Douglas-fir series is extremely difficult in the Garnet Range. Several factors contribute to this difficulty.

Several understory species common to the Douglas-fir series tend to be sod forming as the canopy cover is opened. This process is further compounded when heavy livestock grazing occurs on these understory species.

Cone crops are infrequent in Douglas-fir. Heavy cone crops will occur every five to seven years. The Western Spruce Budworm (WSB) is endemic throughout the GRA, and spotty epidemic outbreaks occur just about every year. The WSB feeds on existing foliage, may cause up to 30 percent net loss in height growth, and can damage up to 70 percent of a cone crop.

The first appropriated-fund, reforestation work was done in 1963. To date, 4,893 acres have been planted with bare root stock, 475 acres have been planted with containerized seedlings, and 649 acres have been seeded. Natural regeneration in clearcuts on north and east slopes and in larch seed tree units has been very successful. Shelterwood cutting in Douglas-fir is usually successful on the TPCC nonproblem sites.

Beginning in 1982 all TPCC restricted sites in a timber sale were reforested under the terms of the timber sale contract. To date, 553 acres have been identified for planting with some 308,000 seedlings.

The GRA is actively involved in genetic tree improvement through the Inland Empire Tree Improvement Cooperative (IETIC). Superior trees are selected and their seeds collected for the ponderosa pine, Douglas-fir, and lodgepole pine species programs. In addition, one of the IETIC lodgepole pine progeny test plantations is on public land.

Timber stand improvement was started in 1963 and some 2,266 acres of precommercial thinning has been completed. Under the terms of the timber sale contract, timber stand improvement is indicated when the contract includes overstory removal.

Insect and Disease

The mountain pine beetle is active in the Blackfoot drainage. The damage from this beetle is not significant at this time on BLM-administered land. However, if the infestation increases to epidemic levels, it would threaten lodgepole pine stands in the Chamberlain Creek, Wales Creek, and Yourname Creek drainages.

Although the WSB is the most widespread cause of productivity loss in the Garnet Range, there are a number of other factors that either cause significant volume losses or have the potential to do so (see Table 3-18).

RANGE RESOURCES

Vegetation

The Garnet Resource Area is predominately forested. Shrub and grasslands make up a very small portion (7 percent) of the GRA.

Riparian

Riparian zones also occupy a relatively small acreage along streams and in wet meadows but are important for range management. The 84 allotments contain about 4,841 acres or 80 percent of the total (6,078 acres) riparian habitat. There are currently 4,204 acres of riparian in unsatisfactory condition occurring in 28 of the 84 allotments and 637 acres of satisfactory riparian in some of the remaining allotments. Figures 3-2 and 3-3 show how satisfactory riparian habitat compares to unsatisfactory riparian habitat.

TABLE 3-18
FACTORS AFFECTING FOREST PRODUCTIVITY

Cause of Productivity Loss	1980	1981	1982	1983
Western Spruce Budworm	decreasing	decreasing	increasing	decreasing
Mountain Pine Beetle	present	decreasing	decreasing	decreasing
Douglas-fir Beetle	present	present	present	increasing
Balsam Bark Beetle	not present	not present	not present	present
Pine Engraver	present	not present	not present	not present
Porcupine	present	present	present	increasing
Fire	very minor	very minor	very minor	very minor
Root Rot	present	present	present	becoming more evident
Mistletoe (LPP)	present in old-growth	present in old-growth	present in old-growth	present in old-growth
Mistletoe (DF)	present*	present*	present*	present*
Mistletoe (WL)	present*	present*	present*	present*

*not found east of R. 17 W.
Information from Forest Service Region I Cooperative Forestry and Pest Management and BLM inventory.

Noxious Weeds

The resource area contains several species of toxic and noxious plants. These are leafy spurge, spotted knapweed, musk thistle, Canadian thistle, and Dalmation toadflax. Of these, knapweed and musk thistle present the most significant problems for grazing management. These plants thrive in areas where the soil is disturbed. The seeds are easily dispersed by vehicles, contaminated hay, and winds. Almost all drainages have some weed growth. However, heavy growth of weeds can be found in the lower reaches of Mulkey Gulch, Rattler Gulch, Ashby Creek, and Braziel Creek.

Transitory Range

Between logging and the reestablishment of the forest, transitory range is created. Transitory range in the Douglas-fir series produces most of the resource area's forage. Transitory range can produce forage for up to 40 years before shading from the trees restricts the growth of the understory forage. Depending on site and habitat type, timber harvest areas may produce from 200 to 1,800 pounds of usable forage per acre per year. The greatest forage production should occur in the sixth through fifteenth year after harvest.

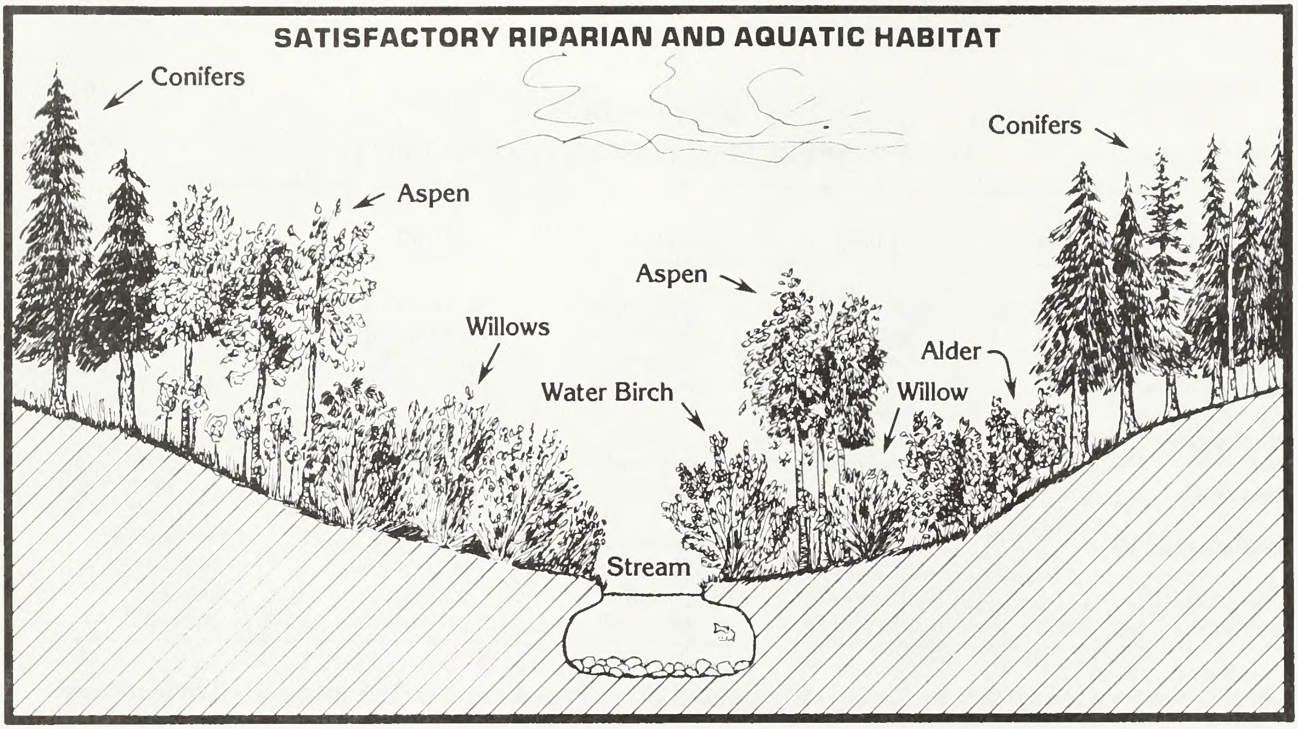
Livestock Grazing

The resource area has 110,269 acres (76 percent) leased for livestock grazing. Twenty-four percent or 35,391 acres are unleased. The leased lands are separated into 84 allotments with a forage allocation of 5,930 Animal Unit Months (AUM). All allotments are cow/calf operations. The grazing season generally runs from June 1 to October 15 each year. The allotments are shown on the Garnet Resource Area Grazing Allotment map located in the map packet.

Between 1976 and 1982 range resources were evaluated as to existing site condition and recommended stocking rate. The information was used to assign the number of acres available for livestock grazing and the estimated carrying capacity for each grazing lease. The vegetative condition was assigned a rating of excellent, good, fair, or poor condition using the Montana Grazing Guides (USDA, SCS 1977 and revisions 1983).

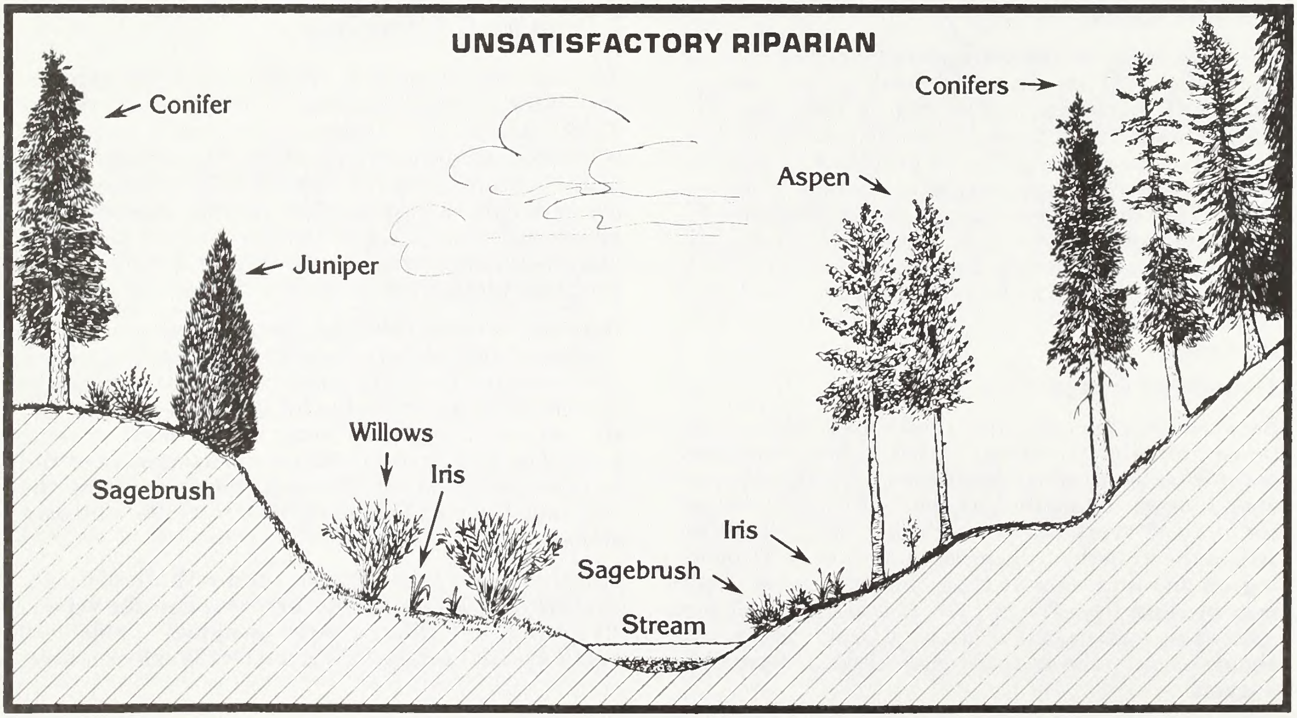
Appendix L lists the condition and authorized use for each grazing allotment and explains how the vegetative condition ratings were assigned. Table 3-19 summarizes the range condition for the resource area.

FIGURE 3-2



Satisfactory riparian habitat is characterized by good vigor and canopy coverage, abundant reproduction of palatable plant species, and well developed, overhanging stream banks. Gravels dominate the stream substrate, which provides good habitat for fish spawning and aquatic invertebrates.

FIGURE 3-3



Unsatisfactory riparian habitat is characterized by poor vigor and canopy coverage, low species diversity, and a lack of reproduction of woody plant species. Unpalatable plants, such as sagebrush and iris, are increasing in abundance. Streams have eroded stream banks and shallow water (because the banks are not overhanging). Silt dominates the stream substrate, which provides poor habitat for fish spawning and aquatic invertebrates.

TABLE 3-19

SUMMARY OF PRESENT VEGETATIVE CONDITIONS AND CLASSIFICATION FOR THE GRA

	Acres Currently Leased						Unleased Areas[2]		Areas Closed To Grazing		GRA Total	
	Improvement (I) Category		Maintenance (M) Category		Custodial (C) Category							
Condition/ Classification	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Excellent	5,699	12	5,549	11	691	6	0	0	35	Trace	11,974	8
Good[1]	7,196	15	12,264	24	1,653	15	0	0	3,892	14	25,005	17
Fair	4,352	9	7,761	15	2,146	19	0	0	66	1	14,325	10
Poor	293	1	1,004	2	39	Trace	0	0	0	0	1,336	1
Waste	23,635	50	20,061	39	2,899	25	0	0	23,207	85	69,802	48
Unclassified	170	Trace	1,163	2	3,594	32	6,141	75	0	0	11,068	8
Logged	6,244	13	3,493	7	363	3	2,050	25	0	0	12,150	8
Column Totals	47,589	100	51,295	100	11,385	100	8,191	100	27,200	100	145,660	100

[1] Does not include acres classified as logged, all of which are assumed to be in good vegetative condition.

[2] Areas available for leasing but not currently leased; mostly small, widely-scattered tracts; generally steep and forested.

The vegetative condition rating system ranks an area as excellent if the vegetative community has stabilized and the forage is the climax species for that site. A good or fair rating may also represent quality livestock forage that is in transition toward the climax species. This is especially true in the Garnet Resource Area where most forage is in a transitional stage.

There are a variety of range improvements in place on several grazing allotments. These include 73.6 miles of fence, 27 spring developments, 15 cattleguards, and 3 miles of pipeline.

Allotment Management Plans (AMP) have been completed on 73,490 acres of public and adjacent private lands. Table 3-20 lists the AMPs and their acreages. The AMPs set management objectives for improving the range, watershed, soils, wildlife, and forest resources. The areas are monitored and evaluated each grazing cycle to determine if progress is made toward achieving the AMP objectives.

TABLE 3-20

ALLOTMENT MANAGEMENT PLANS

AMP Name	Acres Public	Acres Private	Total
Five Mile Creek	480	—	480
McElwain Creek	6,358	3,485	9,843
Wales Creek	856	640	1,496
Devil Mountain	2,018	8,991	11,009
Braziel Creek	8,105	2,080	10,185
Warm Springs Creek	7,361	13,567	20,928
Marcum Mountain	3,443	2,319	5,762
Ram Mountain	4,151	2,825	6,976
West Fork Buttes	640	1,280	1,920
Stewart Lake	2,251	2,640	4,891
Total	35,663	37,827	73,490

WILDLIFE HABITAT RESOURCES

The Garnet Resource Area contains the mountain coniferous, mountain grasslands, riparian, and aquatic wildlife habitats.

The mountain coniferous habitat has a forest canopy on gentle to steep terrain. The mountain grasslands are located in small mountain parks or expansive grasslands lower in elevation than the coniferous habitat. Forest clearcuts are not included in the grassland habitat.

The riparian habitat lies along stream courses and within mesic areas. There are about 6,078 acres of riparian habitat along stream courses. Riparian also includes lakes, reservoirs, seeps, springs, bogs, marshes, and wet meadows but will not be measured or mapped.

The aquatic habitat occurs in permanent bodies of water capable of producing fish. The aquatic habitat is found within the riparian habitat. There are 67 miles of fish producing streams (58 miles) and rivers (9 miles) on public land in the GRA.

Threatened and Endangered Species Habitat

The resource area contains current and historic habitat for four threatened or endangered species: the bald eagle, peregrine falcon, northern Rocky Mountain wolf, and grizzly bear. The only species currently using the habitat is the bald eagle.

Bald eagles from northern populations migrate into Montana in late fall and early winter. Five to thirty eagles have wintered along the Blackfoot and Clark Fork rivers between 1979 and 1983. The Blackfoot River also provides excellent nesting habitat and has the highest density of breeding pairs in Montana.

Big Game Species Habitat

The resource area supports habitat for mule deer, white-tailed deer, elk, moose, bighorn sheep, black bear, and mountain lion (see the Big Game Winter Range map by species).

Mule Deer Habitat

Mule deer are the most abundant big game species in the GRA and occupy nearly all habitats. The deer prefer open areas with adequate forage near trees and shrubs that provide escape cover. Seasonal forage in the GRA is generally good on the summer and fall ranges and varies from poor to good on the winter ranges. On summer and fall ranges, security cover is an important habitat component while thermal cover on winter and spring ranges is a prime management component.

Mule deer are opportunistic feeders. During spring, grasses are preferred until forbs are available. Forbs and browse are preferred in summer. In winter the deer use all available sources. Winter browse is the limiting factor on mule deer populations. Preferred winter browse includes serviceberry, chokecherry, bitterbrush, ceanothus, juniper, mountain maple, sagebrush, rose, rabbitbrush, Douglas-fir, and ponderosa pine. Approximately 273,432 acres of deer winter range have been identified in the GRA. Ten percent or 27,635 acres is public land.

White-tailed Deer Habitat

White-tailed deer most often occur at low elevations along major creeks and river valleys. White-tailed deer use mostly forbs in the spring and summer with increased use of browse and grasses in fall and winter. Use of agricultural lands increase in the winter.

Elk Habitat

Elk prefer the mountain coniferous habitat. They can be found near the interface between forest and nonforest communities. They move from moist sites at the heads of drainages in the summer to dense timber and dry open parks in the fall. In the winter and spring they occupy grassland habitats near mature timber stands.

Elk are primarily grazing animals. Grass is the preferred forage in spring. Forbs and shrubs are used in the summer, then dry grasses and browse in the fall and winter. Elk diet includes bunchgrass, wheatgrass, mountain brome, junegrass, sedge, thistle, sweetclover, penstemon, dandelion, arnica, bitterbrush, serviceberry, sagebrush, mountain maple, willow, chokecherry, aspen, and lichens (Thomas and Toweill 1982; BLM Observations).

About 231,346 acres of elk winter range have been identified in the GRA. Eleven percent or 24,975 acres is public land. The lands provide an abundance of summer and fall range for elk compared to a limited amount of winter range.

The Chamberlain Creek Elk Logging Study area is located on the resource area. The study area is used to describe elk distribution, movement, and habitat use of the area before, during, and after logging operations.

Moose Habitat

Moose occur in limited numbers in riparian and other browse-producing habitats. Browse is the most important forage throughout the year. In the spring and summer grass and forbs are also used.

About 15,504 acres of moose winter range occur in the GRA. Twenty-six percent or 4,014 acres is public land. The forage condition trend is rated stable to declining.

Rocky Mountain Bighorn Sheep Habitat

Bighorn sheep habitat is found along the upper Rock Creek and Willow Creek area. The current population is estimated at 175 to 200 animals (information supplied by MDFWP, March 1984).

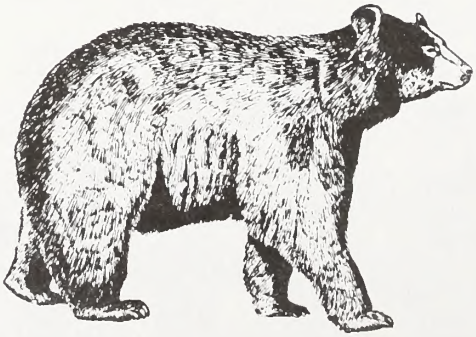
Grass and grasslike plants provide the major diet (Berwick 1968; Cooperrider 1969). Green forbs are always used when available, and browse provides supplemental winter forage. About 5,804 acres of bighorn sheep winter range occur in the Ram Mountain area. Fifteen percent or 905 acres is public land. The forage is in fair to good condition. The bighorn sheep compete for winter and spring forage with deer, elk, and livestock.

Black Bear Habitat

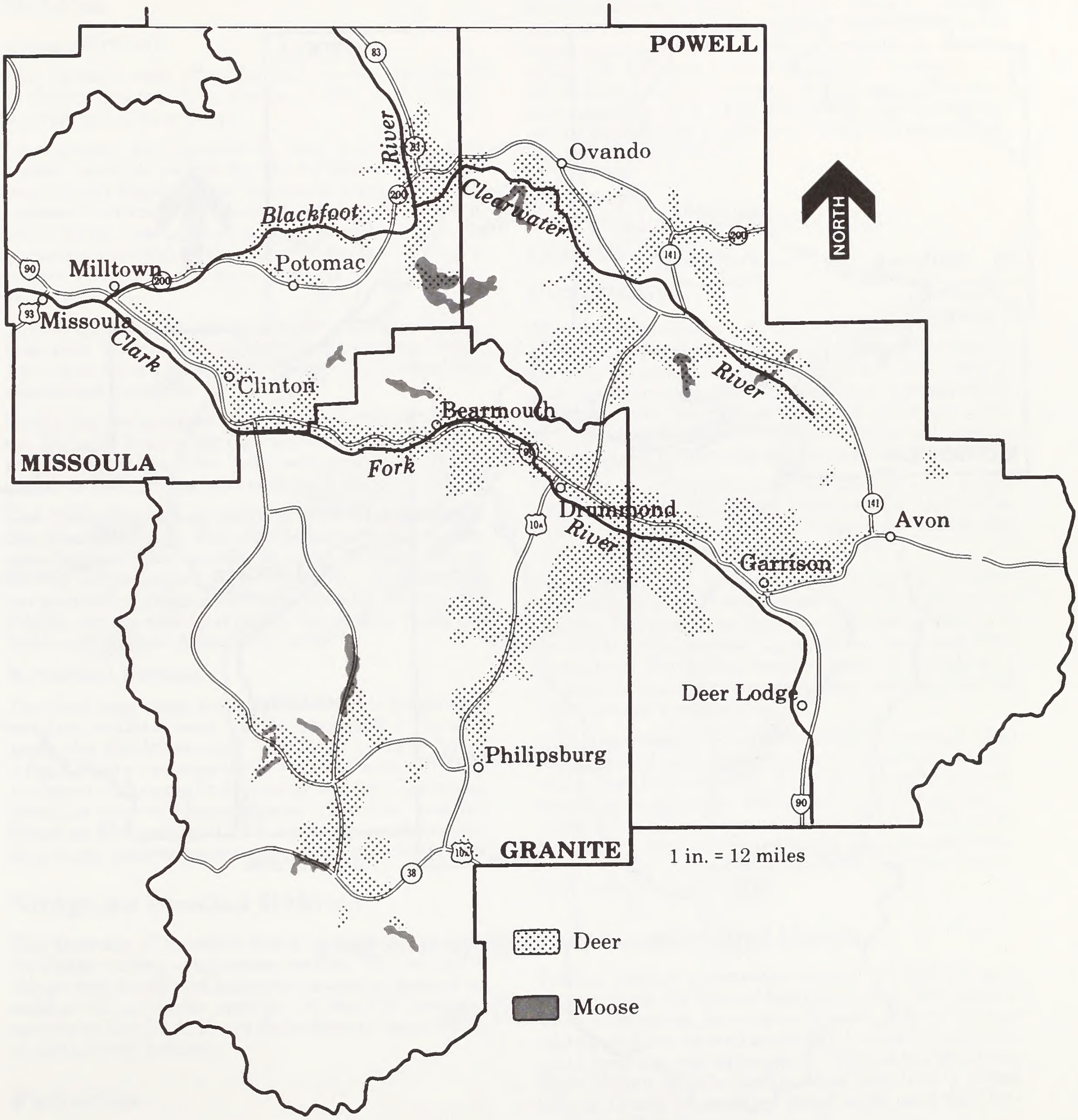
Black bear use a variety of habitats but prefer forested and riparian areas. These areas provide food, cover, and winter denning sites. The black bear feeds on berries, nuts, roots, grasses, and forbs as well as insects, fish, rodents, carrion, and occasionally large mammals.

Mountain Lion Habitat

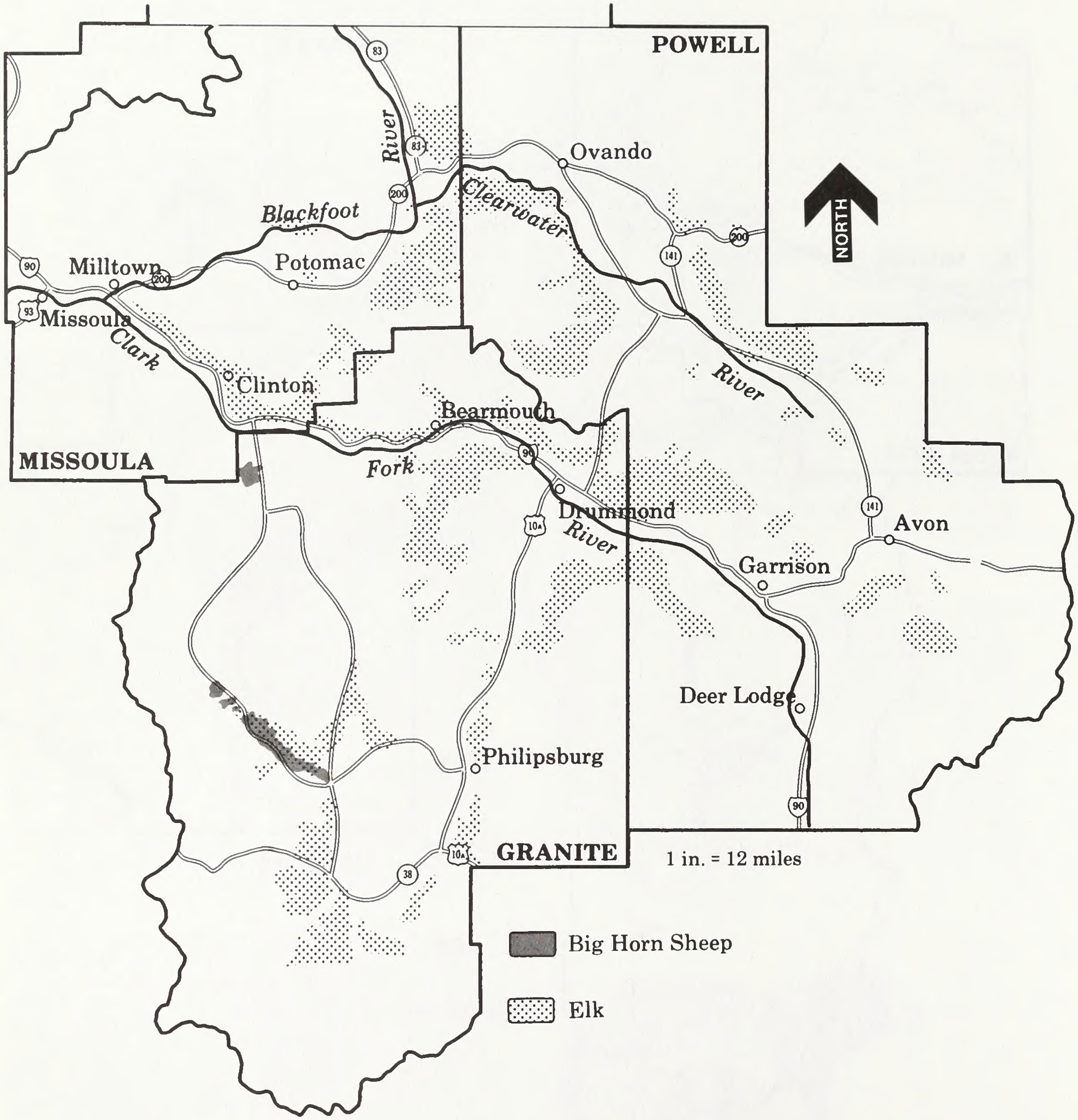
Mountain lions use a variety of habitats that provide food, cover, and den sites. The primary food of the mountain lion is deer; other sources are porcupines, rabbits, and rodents.



BIG GAME WINTER RANGE DEER/MOOSE



BIG GAME WINTER RANGE
BIG HORN SHEEP/ELK



Upland Game Birds and Waterfowl Habitat

Grouse Habitat

The resource area offers habitat for four species of mountain grouse: blue, spruce, ruffed, and Columbian sharp-tailed grouse.

Blue grouse use Douglas-fir and ponderosa pine stands, thickets, and parks. The habitat provides territorial and display sites, brooding areas, and food sources. Food includes insects, fruits, berries, flowers, buds, twigs, leaves, and conifer needles. The blue grouse move to higher elevations in September for the winter and return to lower habitat in spring and summer.

Spruce grouse use dense conifer stands, usually lodgepole. They prefer stands with good ground cover and small trees and shrubs. Conifer needles are the staple food in winter.

Ruffed grouse are most often found in riparian habitat. Suitable drumming logs are an important factor in spring habitat. The basic winter diet for ruffed grouse is buds, twigs, and catkins.

The Columbian sharp-tailed grouse (a relic population near Helmville, Montana) is found in sagebrush, grasslands, open woodland, and brushy draws. Spring habitat must contain dancing grounds that are sparsely vegetated and elevated sites. Wheat and alfalfa can provide food and cover. Winter foods are buds and catkins (Johnsgard 1973).

Waterfowl Habitat

The most important waterfowl habitat is found on a 160-acre wetland area on Kleinschmidt Lake and along the Blackfoot and Clark Fork rivers (9 linear miles). Ducks common to the inland Pacific Flyway are found in the area in the spring and fall. Seventeen breeding pairs of Canada geese have been reestablished on Kleinschmidt Lake by using artificial nest structures, gosling releases, and hunting restrictions.

Nongame Species Habitat

The diversity of habitats found in the GRA provide for a wide variety of nongame species. The concept of old-growth forest is an important aspect of managing habitat for nongame species. Of the 274 nongame species on the GRA, 28 are dependent to some degree on old-growth habitat.

Fisheries

Sixty-seven miles of fishing streams and rivers produce cutthroat, rainbow, cutthroat/rainbow hybrids, brown, brook, and dolly varden trout; bullhead; whitefish; squawfish; sucker; red-sided shiner; and sculpin (see Table 3-21). An additional nine miles of stream produces no fish but contributes high quality water for downstream fisheries.

Thirty-four miles of streams can be rated as optimum aquatic habitat. Eighteen miles of streams are rated as suboptimum aquatic habitat. The suboptimum habitat has little bank stability, inadequate bank cover, a low pool to riffle ratio, or undesirable bottom materials. Portions of the suboptimum aquatic habitat will respond to changes in grazing and timber management alone while others will require structural improvements. There are 15 miles of unsurveyed, fish producing streams.

SOCIAL AND ECONOMIC CONDITIONS

Population

The total population in Granite, Missoula, and Powell counties was 85,674 in 1980. Missoula County grew by 30 percent between 1970 and 1980. Powell and Granite counties had little change in population. In comparison, the State of Montana as a whole grew by 13 percent. Table 3-22 shows the projected population changes for each county through the year 2005.

The largest city in the area is Missoula with a city population of 33,388. Other towns include Deer Lodge with a population of 4,011; Philipsburg, population 1,131; and Drummond, population 410.

The median age of the people living in Granite County is 33, 31 in Powell County, and 27 in Missoula County. The young, median age of people in Missoula County is attributed mainly to the university student population. The older, median ages of Powell and Granite is probably caused by the outmigration of young people seeking jobs.

Population density varies between the counties. Missoula County has twenty-nine people per square mile, while Powell County has three and Granite has two people per square mile. Missoula County's population is becoming more urban as the city of Missoula gains population, while Powell County is becoming more rural as Deer Lodge loses population. The population in Granite County is rural.

Employment and Income

Timber related businesses are one of the primary employers in the Garnet Resource Area. The primarily rural counties, Granite and Powell, rely on mining and agriculture as well as timber. Powell County also has a large number of people working at the Montana State Prison in Deer Lodge. Missoula County offers jobs in timber processing, retail trade, and the University of Montana.

Employment related to agriculture is expected to decline in the three-county area through 2005, while employment in other areas is expected to increase. Table 3-23 shows the projected employment rates for Missoula, Granite, and Powell counties as predicted by the BLM Economic/Demographic Model.

TABLE 3-21
FISHABLE STREAMS AND RIVERS IN THE GRA

Stream Name	Total Miles	BLM Miles Producing Fish	Optimum Habitat (70%)	Suboptimum Habitat (69-%)	Fishable Miles In BLM Grazing Allot.	Type of Fish
Ashby Creek, E. Fork	2.6	1.4	81	—	.75	CT
Ashby Creek, W. Fork	2.5	0.6	74	—	.6	CT
Bear Creek, E. Fork (Blackfoot)	2.7	0.8	75	—	—	CT
Beaver/Bear Creek (Upper Willow)	1.5	1.2	NS	NS	1.2	CT
Boulder Creek	2.7	0.3	NS	NS	0.3	CT, RT, BT, BnT, DV, WF
Camas Creek	4.2	0.8	—	30	0.5	CT
Chamberlain Creek	9.8	4.0	76	—	—	CT, DV
Copper Creek	3.4	0.8	NS	NS	0.8	CT
Cottonwood Creek (Silver King)	—	0.75	NS	NS	0.75	CT
Cramer Creek, E. Fork	8.0	0.8	72	—	0.8	CT, BT
Deer Gulch	2.8	1.6	—	51	1.6	CT
Douglas Creek (Section 6)	—	0.25	NS	NS	0.25	CT
Douglas Creek	10.0	2.6	76	—	1.75	CT
Dry Cottonwood Creek	9.5	1.3	—	39	1.3	CT
Elk Creek	11.5	1.8	71	—	—	CT, RT, BT
Flint Creek	—	1.25	79	—	1.25	CT, BnT, RT, SK
Fred Burr Creek	8.0	0.3	NS	NS	—	CT, RT
Gallagher Creek	6.9	3.4	94	—	—	CT
Greenough Creek	5.0	0.2	NS	NS	—	CT
Kennedy Creek	3.8	2.5	72	—	0.9	CT
McElwain Creek	11.0	4.9	70	—	3.5	CT
Murray Creek	10.0	2.1	80	—	1.5	CT
Pearson Creek	6.9	1.1	—	53	—	CT
Scotchman Creek	5.5	1.7	NS	NS	1.7	CT
Tenmile Creek	4.0	2.5	82	—	2.25	CT
Union Creek	14.0	1.6	79	—	1.25	CT
Upper Willow Creek	17.4	0.8	NS	NS	0.8	CT, RT, BnT BT, DV
Wales Creek	4.7	3.4	84	—	—	CT, RT
Wallace Creek	3.5	2.0	—	53	1.25	CT
Warm Springs Creek	12.0	1.0	NS	NS	0.5	CT, BnT
Wet Cottonwood Creek	6.8	6.8	—	65	—	CT
Yourname Creek	9.0	3.5	—	68	1.75	CT, BT
Blackfoot River	—	2.8	NS	NS	0.95	All
Clark Fork River	—	5.1	NS	NS	0.25	All, except DV
Rock Creek	—	1.1	NS	NS	0.2	All

CT = Cutthroat trout
BT = Brook trout
BnT= Brown trout
DV = Dolly Varden

RT = Rainbow trout
SK = Sucker
WF = Whitefish
SF = Squawfish
NS = Not Surveyed

TABLE 3-22
POPULATION PROJECTIONS FOR MISSOULA, GRANITE, AND POWELL COUNTIES

		Population					
County	1980	Change Between 1980-1990	Projection 1990	Change Between 1990-2000	Projection 2000	Change Between 2000-2005	Projection 2005
Missoula	76,016	23%	93,728	25%	116,891	10%	128,829
Granite	2,700	36%	3,664	26%	4,597	10%	5,046
Powell	6,958	33%	9,225	28%	11,780	10%	12,938

TABLE 3-23
EMPLOYMENT PROJECTIONS FOR MISSOULA, GRANITE, AND POWELL COUNTIES

County	Agricultural Employment 1980	1990	2000	2005	Nonagricultural Employment 1980	1990	2000	2005
Missoula	532	500	474	464	37,954	46,766	58,695	65,964
Granite	210	198	188	184	653	940	1,257	1,430
Powell	288	270	255	252	2,102	2,761	3,583	3,957

Lifestyle and Attitudes

Lifestyle in western Montana is oriented towards the outdoors for both work and recreation. As a result, residents take an interest in issues concerning the land and how it is managed.

The population is in general well educated. Seventy-four percent have graduated from high school. The schools form the social center for the communities, and academic quality is an important community concern.

The residents take interest in local, state, and federal government concerns. The population has a high percentage of registered voters, and voter turnouts tend to be higher than the national average. The population also lends support to a wide variety of organizations that are interested in land management. These groups virtually cover the entire spectrum of opinion on land management issues.

Among the negative aspects of life in Montana are the relatively low per capita income, the high traffic death rates, and the relative remoteness from national trade centers. Unemployment rates in western Montana are currently among the highest in the state.

Attitudes in the area tend to favor local control over resource issues. Recreation, wildlife, and wilderness all have strong advocates in the community. The use of natural resources are also viewed as being vitally important to the economic well-being of the area.

Federal Payments to County Governments

The Taylor Grazing Act and the Mineral Leasing Act shares grazing and lease fees with the county governments. Likewise, the payment in lieu of taxes program reimburses county governments for loss of tax revenues on public lands. Table 3-24 shows the amounts received by each county in 1982.

Socioeconomic Relationships

Forestry

Timber production is the major use of the BLM-managed lands in the GRA. The timberlands are in checkerboard ownership with corporate lands owned by Champion Timberlands and Plum Creek. Most of the timber produced in western Montana comes from private and national forest lands. Timber harvest from BLM-managed lands amounted to only 0.5 percent of the total harvest in Missoula, Powell, and Granite counties. Cutting and processing this amount of timber contributes about 57 jobs in the private sector. In comparison there are a total of 3,275 jobs in timber processing in Powell, Granite, and Missoula counties.

Recreation

Recreation in the form of hunting, fishing, camping, hiking, and off-road vehicle use is also an important use of public lands. Habitat protection and access are concerns raised by recreationists.

TABLE 3-24
FEDERAL PAYMENTS TO COUNTY GOVERNMENTS IN 1982

Funding Authorization	Missoula County	Granite County	Powell County	Montana
Taylor Grazing Act	$ 406	$ 2,900	$ 2,240	$ 167,266
Mineral Leasing Act	12,036	165,207	153,365	17,652,679
Payment In Lieu of Taxes	210,086	65,222	68,806	7,213,567
Total	222,528	233,329	224,411	25,033,512

Habitat protection allows for maximum production of wildlife. The presence of abundant wildlife encourages hunting and fishing. Western Montana supported 339,671 hunter days for deer and elk in 1982 and 419 days for waterfowl. Of this, 30,000 hunter days occurred on BLM-managed lands. Hunting is estimated to bring $1,400,000 into the economies of Granite, Missoula, and Powell counties.

An estimated 10,051 recreational days per year occur on BLM-administered land for other recreational activities. This estimate does not include sight-seeing or viewing of public lands; recreational days would increase significantly if they were counted for all public lands. For instance, an estimated 12,000 visitor days per year occur at Garnet Ghost Town. This represents only a small percent of the total recreation days spent on all lands in Granite, Powell, and Missoula counties.

Land Adjustment

Both Champion Timberlands and Plum Creek Timber Company have expressed interest in land ownership adjustment to consolidate their land holdings. The lands are currently in a checkerboard ownership pattern. Consolidation of holding offers advantages to both the public and private sector in terms of effective management and efficient use of resources.

Utility Corridors

In 1983 work was in progress on two major utility lines: the Montana Power's natural gas pipeline through Powell County and the BPA powerline through all three counties. During this same period the proposed Northern Tier oil pipeline route, which would have passed through the GRA, was canceled. All three lines attracted considerable public attention and controversy. While very little BLM-administered lands were in the corridor routes, the BLM was the authorizing agency.

Energy and Minerals

Prospecting for silver and gold has increased recently in the three-county area. Producing mines include a major phosphate mine; a large silver mine; and small gold, silver, and barite operations.

Public land is favored for prospecting because claims may be staked. Ten placer gold mines, one barite mine, and a phosphate mine presently operate on public land. The ten placer mines employ approximately four persons each for a total employment of forty persons. Occasional, temporary employment is available for exploratory handrock core drilling.

Oil and gas exploration is beginning in the three-county area and on public lands. Temporary employment is available from time to time for workers on seismic crews. In 1983 three core drilling companies were working in the area for two to three months each.

Cultural

Garnet Ghost Town and other abandoned mining towns are the most significant cultural sites on the public lands. These BLM sites are also among the most important cultural sites in the entire three-county area. Citizens in and around Missoula have formed the Garnet Preservation Association to help protect and stabilize the town site.

Livestock Grazing

The BLM supplies a total of 5,930 AUMs of grazing. As of 1984, the BLM charges ranchers $1.37 per AUM while the state charges $3.00, Plum Creek Timber Company $5.40, Champion Timberlands $4.50, and other private grazing averages $9.45.

The dependency of ranches on BLM grazing in all size classes (see Appendix R) is relatively small as shown in Table 3-25. This dependency is based on the percentage of total needed forage provided by BLM lands. Relative dependency could be higher for individual ranches if BLM grazing is concentrated in a specific season where the ranch does not have enough forage from other sources.

TABLE 3-25

DEPENDENCY OF LESSEES ON LIVESTOCK FORAGE ON PUBLIC LANDS IN THE GARNET RESOURCE AREA

Size Class	Number of Ranches	Average Dependency*
1	22	8.1%
2	12	2.1%
3	22	1.7%
4	20	2.1%

*Percent of AUMs on public land compared to total AUMs on both public and private lands in an allotment.

Wilderness

The supply of wilderness land in the vicinity of the GRA is relatively large. The addition of Wales Creek, Hoodoo Mountain, Gallagher Creek, and Quigg West to the wilderness system would not significantly add to the total wilderness opportunity in the area. The areas do contain commercial timber and unknown potential for minerals, oil, and gas. These areas are currently used primarily during the hunting season for walk-in hunting for elk. A large percentage of the hunter days on BLM-administered lands in the resource area occur in these areas.

CHAPTER 4
ENVIRONMENTAL CONSEQUENCES

ANALYSIS PROCESS

The environmental impacts of Alternatives A through E were analyzed by an interdisciplinary team of staff specialists. They employed an analysis process in which each management area prescription was evaluated to determine the impacts that prescribed management goals and guidelines would have on each resource. This process is called networking. The documents developed in the networking process may be examined at the Garnet Resource Area Office.

A list of significant change agents and indicators was produced from the networking process. This list was then used to analyze the impacts of various actions via the Systematic Environmental Analysis process of impact analysis (Haug 1984a,b).

ANALYSIS GUIDELINES

The following guidelines were used by the interdisciplinary team in determining impacts.

Only significant changes or impacts are discussed.

Impacts which would be mitigated through the application of Standard Operating Procedures are not discussed, unless mitigation would be only partial and significant impacts would remain.

Immediate impacts are those that occur during the construction or start up phase of a project. Short-term impacts occur after the project is in place and may continue for a period of ten years. Long-term impacts can occur up to twenty years after the project is in place.

ANALYSIS ASSUMPTIONS

The following assumptions were used by the interdisciplinary team in determining impacts.

Funding and personnel will be adequate to fully implement all management actions associated with each alternative within ten years following plan approval. Implementation of the plan will begin in 1986.

All RMP recommendations that require action outside of the authority of the District Manager and State Director will be accepted and implemented. For example, recommendations for the revocation of existing withdrawals and the establishment of new withdrawals will be favorably acted upon by the Secretary of the Interior.

Areas recommended as suitable for wilderness designation will be so designated by Congress. Section 603 wilderness study areas recommended as nonsuitable for wilderness designation will be released by Congress from the BLM Interim Management Policy and Guidelines for Lands Under Wilderness Review and will be managed in accordance with nonwilderness RMP guidelines. Section 202 wilderness study areas recommended as nonsuitable for wilderness designation will be released for multiple use when the State Director signs the Record of Decision for the RMP.

Market conditions, encumbrances, resource values, and other factors will permit only 25 percent of the public land outside of the retention zones to be processed in successful disposal actions during the life of the plan. Approximately 95 percent of disposal actions will be exchanges; the remainder will be sales. There will be no significant net gain or loss of resource values resulting from exchanges in the long term (e.g., for every acre of CFL disposed of through exchange, an equivalent acre will be acquired). The total acreage of public land will remain at 145,660 acres.

Forty percent of the acres identified in each alternative for timber harvest will be reentries into stands that have previously had some type of silvicultural treatment.

The average timber yield based on the Missoula Sustained Yield Unit extensive forest inventory, is 76.4 board feet per acre of CFL per year.

One and one-half miles of road are constructed per million board feet of timber harvested. These estimates are based on past harvest practices in the forests on the GRA.

Nine jobs harvesting, planting, and thinning timber are created for every million board feet of timber harvest.

Except for trails, trailheads, parking, and information signing no new recreational facilities would be constructed at undeveloped recreation sites during the 20-year life of the RMP. However, recreation site potential would be protected within Management Area 10.

Mineral exploration would disturb about ten to twenty acres per year.

The net effect of management area goals and guidelines on timber output, expressed as an estimated percent reduction from the potential yield expected under Standard Operating Procedures, is shown in Table 4-1.

Project costs include the initial cost of the project, maintenance over a ten-year period, and the cost of replacement if the project has a life of less than 20 years. Table 4-2 lists the values used in these calculations.

SUMMARY OF IMPACTS

Table 4-3 summarizes the impacts that are discussed in detail in this chapter.

ALTERNATIVE A

Impacts on Air Quality

Dust from construction activities and road use related to oil, gas, and forest management practices such as road building, mining, pump site locations, and pipelines can have immediate adverse impacts on localized air quality. Slash disposal via burning will also adversely impact air quality at the time it occurs. However, these intermittent adverse impacts are normally not significant.

Conclusion

This alternative would adversely impact air quality in localized areas during the time of project construction or slash burning. However, these impacts would not be significant to overall air quality.

TABLE 4-1

ESTIMATED REDUCTION IN TIMBER OUTPUT DUE TO MANAGEMENT AREA PRESCRIPTIONS

No.	Management Area	% Reduction
1	Riparian Protection Zone	100
2	Riparian Multiple Use Zone	20
3	General Forest Management	0
4	Elk Summer and Fall Habitat Components	20
5	Big Game Summer and Fall Range	20
6	Big Game Winter Range	20
7	Noncommercial Forest and TPCC Withdrawn Commercial Forest	N/A
8	Areas Recommended For Wilderness Designation	100
9	Special Management Areas	100
10	Developed and Undeveloped Recreation Sites	20
11	Historical and Cultural Sites	100
12	Visual Corridor	0
13	Nonforest Habitat	N/A
14	Mineral Production Area	100

TABLE 4-2

COSTS OF BUILDING, MAINTAINING, AND REPLACING RANGE IMPROVEMENTS

Improvement Or Treatment	Initial Or Replacement Cost*	Annual Maintenance Cost
Fence	5,000/mile	175/mile
Pipeline	12,000/mile	32/mile
Spring	2,500/each	60/each
Tank	500/each	8/each
Cattleguard	2,500/each	24/each
Weed Control	16/acre	32/acre

*Cost includes material and labor.
Replacement is needed every 20 years.

Impacts on Soil and Water Resources

The greatest potential impact upon soils and water quality is the construction and use of roads, including skid trails. Road construction exposes soil to erosion and can create a potential for slumps and landslides. During the construction phase it is often necessary to enter stream channels when constructing stream crossings, and fill material may be cast into or adjacent to the stream.

This type of activity, if properly designed in time and space, will have minimal immediate adverse impacts. Short-term impacts of road construction typically last less than four years, after which time sufficient soil stabilization occurs and surface erosion returns to near predisturbance levels. Field analysis has shown that these impacts can be of little significance when Best Management Practices (Appendix B) are used.

Land area dedicated to roads is a permanent loss in vegetative production and typically represents about 2 percent of the harvest area, which is a significant loss in productive capacity. Roads also cause a permanent increase in basin runoff, which is usually less than 6 percent of management caused runoff increases. This impact is of little significance.

Increases in runoff caused by vegetative manipulation through forestry, grazing, and minerals development will remain until revegetation occurs. Forest harvest practices have the greatest potential for increasing runoff. In these instances, vegetative recovery will occur in 20 to 40 years. Vegetative manipulation does not result in a significant increase in stream discharge until a net threshold level of 20 to 25 percent clearcut equivalency has been realized.

Runoff increases, beyond a threshold limit of about 15 to 20 percent removal of vegetative cover, can adversely impact stream channel stability causing channel erosion with both onsite and offsite effects. Runoff caused by management activities is normally limited to amounts analysis indicates to be a level which avoids adverse impact.

Soil compaction, caused by logging practices and grazing, can reduce water infiltration resulting in increased overland flow and erosion. Soil compaction can also reduce vegetative productivity. These impacts are mitigated through identification of compaction prone soils and by application of appropriate management techniques such as season of use and handling of the soil. With proper management these impacts are usually not significant.

Trampling displacement of soil by livestock and big game, especially along streambanks, is a form of erosion that can markedly reduce water quality and vegetative productivity. This form of impact, which occurs most readily when the soil is very wet or very dry, will be reduced slightly with this alternative. The extent of this impact is small and of moderate significance insofar as water quality and vegetative productivity are concerned. This alternative, which has 118,460 acres available for grazing, will have 11,939 acres in excellent condition, 27,433 acres in good condition, 7,739 acres in fair condition, and 1,223 acres in poor vegetative condition.

Most mining activity in the resource area is placer mining. Soil disturbance is directly associated with these activities; and due to the washing of materials, water quality may be temporarily degraded. With proper mining techniques and adequate reclamation these problems should be minimized. Impacts upon riparian areas and, for short periods of time, upon water quality and aquatic habitat are significant. However, with proper use of 3809 Regulations long-term impacts can be reduced to an acceptable level.

Standard Operating Procedures will continue to be used to maintain or enhance site productivity, water quality, and stream stability. Continued use of allotment management plans will reduce grazing impacts.

Conclusion

Road construction associated with forestry, oil, gas, and minerals development will be the greatest source of sediment production. Mitigation will substantially reduce the extent of these impacts. Immediate and short-term impacts of road construction will be controlled by use of BMPs (see Appendix B) and last only about four years. Activities that may cause an increase in runoff, soil compaction, and erosion or a decrease in water quality or soil productivity can be designed to avoid or mitigate long-term impacts to an environmentally acceptable level.

Impacts On Energy and Minerals

Oil and Gas

This alternative allows surface occupancy on oil and gas leases issued on 84 percent (172,246 acres) of the surface and mineral estate. Sixty-six percent (135,372 acres) of occupancy would be permitted with standard stipulations, while 18 percent (36,874 acres) would be permitted with seasonal restrictions. Sixteen percent (33,340 acres) would require no surface occupancy.

Leases issued with standard stipulations are the least confining to the lessee while providing protection for other important resources. In some cases, application of the standard stipulations may prohibit occupancy on steep slopes and adjacent to surface water.

Special stipulations are required in areas where standard stipulations are not adequate. These areas total 70,214 acres and include both seasonal restrictions and stipulations prohibiting surface occupancy. Seasonal restrictions, which limit oil and gas activities during a designated period each year, are implemented mainly to provide wildlife security, reduce road maintenance needs, and reduce recreation conflicts and are located in existing road closure areas. If additional road closures are imposed, exploration and development activities could be restricted. However, even in areas of moderate potential this should not prove to be a significant impact.

TABLE 4-3

SUMMARY OF THE IMPACTS OF THE ALTERNATIVES ON RESOURCES

A No Action	B Production	C Protection	D Partial Wilderness	E Proposed Action
Air Quality. Project construction on approximately 1,275 acres/year and slash burning in the resource area will cause a decrease in localized air quality.	Air Quality. Project construction on approximately 1,730 acres/year and slash burning in the resource area will cause a decrease in localized air quality.	Air Quality. Project construction on approximately 1,170 acres/year and slash burning in the resource area will cause a decrease in localized air quality.	Air Quality. Project construction on approximately 1,375 acres/year and slash burning in the resource area will cause a decrease in localized air quality.	Air Quality. Project construction on approximately 1,425 acres/year and slash burning in the resource area will cause a decrease in localized air quality.
Soil and Water. Watershed conditions will improve on 6,746 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality. Road construction totaling 9.6 miles/year will cause short-term increases in sediment production in streams.	Soil and Water. Watershed conditions will improve on 12,996 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality. Road construction, which will increase to 12.9 miles per year, will cause short-term increases in sediment production in streams.	Soil and Water. Watershed conditions will improve on 23,926 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality. Road construction, which will increase to 9.0 miles per year, will cause short-term increases in sediment production in streams.	Soil and Water. Watershed conditions will improve on 23,926 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality. Road construction, which will increase to 10.2 miles per year, will cause short-term increases in sediment production in streams	Soil and Water. Watershed conditions will improve on 15,409 acres resulting in a long-term decrease in soil compaction and erosion along with a long-term increase in streambank stability, ground cover, vegetative productivity, and water quality. Road construction, which will increase to 10.5 miles per year, will cause short-term increases in sediment production in streams.
Energy and Minerals. The removal of some withdrawals and release of the WSAs will cause a long-term increase in opportunities for mineral exploration. The seasonal closure of roads in the resource area will cause short and long-term impacts by restricting access to 36,874 acres of public land. No surface occupancy on 33,340 acres will cause a long-term decrease in the opportunities for oil and gas exploration.	Energy and Minerals. The removal of some withdrawals and release of WSAs will cause a long-term increase in opportunities for mineral and energy exploration. Some land exchanges may cause long-term increases in the amount of land having private ownership over public minerals and associated problems. The formal withdrawal of up to 160 acres at historic mining sites will cause a long-term decrease in opportunities for mineral exploration.	Energy and Minerals. Wilderness designation for 27,737 acres will cause long-term impacts by excluding energy and mineral exploration and development. The seasonal closure of roads in the resource area will cause short and long-term impacts by restricting access to 66,050 acres of public land. Some land exchanges may cause long-term increases in the amount of land having private ownership over public minerals and associated problems.	Energy and Minerals. Wilderness designation for 14,350 acres will cause long-term impacts by excluding energy and mineral exploration and development on areas of low and medium potential. The seasonal closure of roads in the resource area will cause short and long-term impacts by restricting access to 78,550 acres of public land. Some land exchanges may cause long-term increases in the amount of land having private ownership over public minerals.	Energy and Minerals. Wilderness designation for 520 acres will cause long-term impacts by excluding energy and mineral exploration and development on areas of low energy and medium mineral potential. The seasonal closure of roads in the resource area will cause short and long-term impacts by restricting access to 84,076 acres of public land. Some land exchanges may cause long-term increases in the amount of land having private ownership over public minerals.

	The continuance of 1,300 acres in powersite withdrawals will cause a short-term or possibly a long-term (depending on withdrawal review recommendations) decrease in opportunities for mineral exploration.	The removal of some withdrawals will cause a long-term increase in opportunities for mineral and energy exploration. The creation of an ACEC to protect a unique geologic site will allow its continued use by educational institutions.	The removal of some withdrawals will cause a long-term increase in opportunities for mineral and energy exploration. The creation of an ACEC to protect a unique geologic site will allow its continued use by educational institutions.	The removal of some withdrawals will cause a long-term increase in opportunities for mineral and energy exploration. The creation of an ACEC to protect a unique geologic site will allow its continued use by educational institutions.
Lands. The present scattered land pattern and access limit effective use and management of resources. Withdrawal removal will cause a long-term increase in resource use on 500 acres of public land. Restricting transportation and utility corridors to 75% of the resource area will cause a long-term decrease in possible corridor routes.	Lands. Land base adjustment allows consolidation of public lands and acquisition of important resource values. Providing access to an additional 9,500 acres of public land allows greater public use and improved management. Removal of withdrawals will cause a long-term increase in resource use and make the land available for land base adjustment.	Lands. Land base adjustment allows consolidation of public lands and and acquisition of important resource values. Providing access to an additional 9,500 acres of public land allows greater public use and improved management. Removal of withdrawals will cause a long-term increase in resource use and make the land available for land base adjustment. Restricting transportation and utility corridors to 73% of the resource area will cause a long-term decrease in possible corridor routes.	Lands. Land base adjustment allows consolidation of public lands and acquisition of important resource values. Providing access to an additional 9,500 acres of public land allows greater public use and improved management. Removal of withdrawals will cause a long-term increase in resource use and make the land available for land base adjustment. Restricting transportation and utility corridors to 82% of the resource area will cause a long-term decrease in possible corridor routes.	Lands. Land base adjustment allows consolidation of public lands and acquisition of important resource values. Providing access to an additional 9,500 acres of public land allows greater public use and improved management. Removal of withdrawals will cause a long-term increase in resource use and make the land available for land use adjustment. Restricting transportation and utility corridors to 88% of the resource area will cause a long-term decrease in possible corridor routes.

A No Action	B Production	C Protection	D Partial Wilderness	E Proposed Action
Recreation. Timber harvest on 1,216 acres and 9.6 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in recreation opportunities associated with undeveloped land and an increase in motorized recreation. Mineral development could cause both a short and long-term impact by disturbing scenery and recreation sites. Special management for 28,500 acres will allow an increase in primitive recreation activity.	Recreation. Timber harvest on 1,660 acres and 12.9 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in recreation opportunities associated with undeveloped land and an increase in motorized recreation. Mineral, oil and gas, and possible transportation and utility corridor development could cause short and long-term impacts by disturbing recreation sites. Opening WSAs for multiple use would cause a long-term increase in seasonal motorized recreation and long-term decrease in primitive recreation.	Recreation. Timber harvest on 1,120 acres and 9 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation. Wilderness designation for 27,737 acres and special management for 2,400 acres will allow maintenance of existing primitive recreation activity and backcountry hunting opportunities. Mineral development could cause both a short and long-term impact by disturbing recreation sites.	Recreation. Timber harvest on 1,313 acres and 10.2 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation. Wilderness designation for 14,350 acres and special management for 440 acres will allow primitive recreation activity and backcountry hunting opportunities. Mineral development could cause both a short and long-term impact by disturbing recreation sites.	Recreation. Timber harvest on 1,352 acres and 10.5 miles of road construction/year will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation. Wilderness designation for 520 acres and special management on 8,140 acres will allow primitive recreation activity. Mineral, oil and gas, and possible transportation and utility corridor development could cause short and long-term impacts by disturbing recreation sites.
Visual. Timber harvest on 1,216 acres/year, 9.6 miles of road construction per year, range developments, oil and gas leasing on 135,372 acres with standard stipulations, and possible utility corridor development on 115,600 acres will cause long-term impacts that bring about some evident changes in the landscape. Mineral development will cause short-term impacts that bring about evident changes in the landscape.	Visual. Timber harvest on 1,660 acres/year, 12.9 miles of road construction per year, range developments, oil and gas leasing on 205,426 acres with standard stipulations, mineral development on 20 to 40 acres/year and possible utility corridor development on 145,500 acres will cause short and long-term impacts causing changes in the landscape in visually sensitive areas.	Visual. Timber harvest on 1,120 acres/year, 9.0 miles of road construction per year, oil and gas leasing on 109,239 acres with standard stipulations, possible utility corridor development on 105,650 acres will cause long-term impacts that bring about some evident change in the landscape. Mineral development will cause short-term impacts that bring about evident changes in the landscape.	Visual. Timber harvest on 1,313 acres/year, 10.2 miles of road construction per year, oil and gas leasing on 112,086 acres with standard stipulations, possible utility corridor development on 119,650 acres will cause long-term impacts that bring about some evident change in the landscape. Mineral development will cause short-term impacts that bring about evident changes in the landscape.	Visual. Timber harvest on 1,352 acres/year, 10.5 miles of road construction per year, oil and gas leasing on 112,810 acres with standard stipulations, possible utility corridor development on 127,500 acres will cause long-term impacts that bring about some evident change in the landscape. Mineral development will cause short-term impacts that bring about evident changes in the landscape.

Management of 6,500 acres along the Clark Fork, Blackfoot, and Bear Gulch corridors emphasizing visual quality will result in maintenance of scenic quality.		Management of 10,200 acres along Clark Fork River, Blackfoot River, Bear Gulch, Flint Creek, and Rock Creek as scenic corridors will result in the maintenance of their scenic quality.	Management of 10,200 acres along Clark Fork River, Blackfoot River, Flint Creek, and Rock Creek as scenic corridors will result in the maintenance of their scenic quality.	Management of 7,850 acres along Clark Fork River, Blackfoot River, Flint Creek, and Rock Creek as scenic corridors will result in the maintenance of their scenic quality.
Cultural. Increased resource management activities will stimulate discovery of cultural sites in the resource area. Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.	Cultural. Increased resource management activities stimulate discovery of cultural sites in the resource area. Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.	Cultural. Increased resource management activites stimulate discovery of cultural sites in the resource area. Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.	Cultural. Increased resource management activities stimulate discovery of cultural sites in the resource area. Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.	Cultural. Increased resource management activities stimulate discovery of cultural sites in the resource area. Interpretive recreation programs will contribute to a long-term decrease in vandalism and unintentional trespass.
Wilderness. Grazing on 11,900 acres will cause short-term impacts on wilderness values by allowing the use of motorized vehicles on established trails for herd management and construction of range projects. Mineral exploration and development could cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc. Recreation restrictions on motorized vehicle use will protect solitude and naturalness values over most of the 27,737 acres of special management area. Recreational vehicles would be limited to only existing access roads.	Wilderness. Most of the 27,737 acres would be available for timber harvest; however, during the life of the plan, the acreage cut would be about 3,737 acres, causing a loss of naturalness and solitude. Timber harvest would create transitory range and allow grazing to increase on the 27,737 acres causing short and long-term impacts on wilderness values by expanding the need for motorized vehicles for herd management and construction of range projects. Energy and mineral exploration and development without special stipulations to protect solitude and natural values would cause short-term impacts, if no discoveries were made, from the use of motorized and seismic equipment. If discoveries were made, long-term impacts would result from access roads, drill pads, etc.	Wilderness. Wilderness values will receive protection on 27,737 acres of public lands allowing natural systems to continue with minimum impact from the development of other resources. Mineral development would be limited to existing 40 claims; oil and gas activity would be limited to existing leases and controlled by special stipulations. The impacts of development of these claims would be similar to Alternative A, but affect a limited amount of acreage.	Wilderness. A total of 13,387 acres would be available for timber harvest; however, during the life of the plan, the acreage cut would be about the same amount as Alternative B. Therefore impacts would be similar. Impacts from grazing would be the same as Alternative A. Energy and mineral exploration and development on 13,387 acres could cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc. Wilderness values will receive protection on 14,350 acres of public lands allowing natural systems to continue with minimum impact from the development of other resources.	Wilderness. A total of 19,617 acres would be available for timber harvest; however, during the life of the plan the acreage cut would be about the same amount as Alternative B. Therefore, impacts would be similar. The impacts of grazing would be the same as Alternative A. Energy and mineral exploration and development on 19,617 acres could cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc. Recreation restrictions on motorized vehicle use on 7,600 acres will protect solitude and naturalness values over most of the special management area.

A **No Action**	B **Production**	C **Protection**	D **Partial Wilderness**	E **Proposed Action**
Timber harvest restrictions will maintain the wilderness values on 27,737 acres of public lands allowing natural systems to continue with minimum impact from the development of other resources.	Utility and transportation corridor development in these areas could result in long-term impacts on solitude and naturalness by altering the landscape, if a line or roads were built. The development would draw motorized use to the corridor.		Utility and transportation corridor development would be considered for 13,387 acres and, if a line and roads were to be built, could result in long-term impacts on solitude and naturalness by altering the landscape.	Wilderness values will receive protection on 520 acres if the adjacent national forest is designated as wilderness. This would allow natural systems to continue with minimum impact from the development of other resources. Utility and transportation corridor development would be considered for 19,617 acres and, if a line or roads were to be built, could result in long-term impacts on solitude and naturalness by altering the landscape.
Forestry. The total CFL available for harvest is reduced by 22 percent over the long term due to special management of 24,540 acres. The timber yield on 22,460 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife. Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. Visual corridor management will impose additional restrictions on 6,500 acres.	Forestry. Forest productivity would be enhanced by comprehensive management of nearly all CFL thereby controlling outbreaks of forest infestations and improving stand structure. There would be no reduction in CFL for WSAs or special management areas, and no volume restrictions for wildlife habitat. Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. However, land adjustment programs could alleviate much of this impact by reducing scattered ownership.	Forestry. The total CFL available for harvest is reduced by 22 percent over the long term due to wilderness and special management of 24,540 acres of CFL. The timber yield on 49,430 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife. Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. However, land adjustment programs could alleviate much of this impact by reducing scattered ownership. Visual corridor management will impose additional restrictions on 10,200 acres.	Forestry. The total CFL available for harvest is reduced by 13 percent over the long term due to wilderness and/or special management of 14,790 acres of CFL. The timber yield on 61,880 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife. Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. However, land adjustment programs could alleviate much of this impact by reducing scattered ownership. Visual corridor management will impose additional restrictions on 10,200 acres.	Forestry. The total CFL available for harvest is reduced by 6 percent over the long term due to special management of 7,440 acres of CFL. The timber yield on 64,720 acres of CFL will be reduced by 20 percent over the long term due to harvest restrictions that benefit wildlife. Protection of watershed values in areas of mixed ownership may cause 12 to 20-year delays in logging activities in certain drainages. However, land adjustment programs could alleviate much of this impact by reducing scattered ownership. Visual corridor management will impose additional restrictions on 7,850 acres.

Range. The number of AUMs available for livestock grazing would remain at 5,930 AUMs over the short term. However, a 18 percent increase in livestock forage to 6,981 AUMs is predicted over the long term due to the creation of transitory range in logged areas.	Range. Management actions would have a short-term impact of increasing AUMs available for livestock grazing to 9,211 AUMs, a 55% increase. In the long-term the total increase would be 11,662 AUMs, a 97 percent increase. This would be the result of improved vegetative condition and increased timber harvest.	Range. In the short term, riparian habitat management would cause a 39 percent reduction in 3,595 AUMs available for livestock grazing. In the long term, AUMs for livestock grazing would increase to 4,232 but still would represent only a 29 percent reduction from the present level of use.	Range. In the short term, riparian habitat management would cause a 39 percent reduction to 3,595 AUMs available for livestock grazing. In the long term, AUMs for livestock grazing would increase to 4,232 but still would represent only a 29 percent reduction from the present level of use.	Range. In the short term, management actions would increase the AUMs available for livestock grazing by 5 percent over the present 5,930 AUMs increasing AUMs to 6,245. Over the long term, the total increase would be 35 percent increasing to 8,013 AUMs due to improved vegetative condition and increased timber harvest.
Vegetative condition will improve on 6,746 acres due to intensive range management.	Vegetative condition will improve on 12,996 acres due to establishment of AMP programs.	Vegetative condition will improve on 23,926 acres due to riparian habitat management.	Vegetative condition will improve on 23,926 acres due to riparian habitat management.	Vegetative condition will improve on 15,409 acres due to establishment of AMP programs.
The spread of noxious weeds would be checked with herbicides along 3 miles of road per year.	The spread of noxious weeds would be checked along 4 miles of roads with herbicides and on 10 acres of spot treatment per year.	Noxious weeds would spread in drainages and along roads if only biological controls were used.	Noxious weeds would spread in drainages and along roads if only biological controls were used.	The spread of noxious weeds would be checked with herbicides along 4 miles of roads per year.

A No Action	B Production	C Protection	D Partial Wilderness	E Proposed Action
Wildlife and Fisheries. Management activities on about 24,320 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, increasing social intolerance and forage competition with livestock, and increasing the destruction of habitat by road building and other resource development.	Wildlife and Fisheries. Management activities on about 33,200 acres will cause long-term impacts to wildlife summer and winter range by reducing security cover, thermal cover, and old-growth timber stands; disturbing riparian sites and areas where young are reared; increasing social intolerance and forage competition with livestock; and increasing the destruction of habitat by road building and other resource development.	Wildlife and Fisheries. Management activities on about 22,400 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, increasing social intolerance and forage competition with livestock, and increasing the destruction of habitat by road building and other resource development.	Wildlife and Fisheries. Management activities on about 26,260 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, increasing social intolerance and forage competition with livestock, and increasing the destruction of habitat by road building and other resource development.	Wildlife and Fisheries. Management activities on about 27,040 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, increasing social intolerance and forage competition with livestock, and increasing the destruction of habitat by road building and other resource development.
Intensive grazing management will improve forage conditions on about 3,290 acres of big game winter range and on 2,038 acres of riparian habitat.	Intensive grazing management will improve forage conditions on about 5,450 acres of big game winter range and on 3,585 acres of riparian habitat.	Intensive grazing management will improve forage conditions on about 5,929 acres of big game winter range and on 3,603 acres of riparian habitat.	Intensive grazing management will improve forage conditions on about 5,929 acres of big game winter range and on 3,603 acres of riparian habitat.	Intensive grazing management will improve forage conditions on about 5,370 acres of big game winter range and on 3,094 acres of riparian habitat.
Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.	Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.	Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.	Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.	Mineral development on about 98 acres, 1.5%, of riparian habitat will destroy habitat for many wildlife species, as well as disrupt stream beds.
Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.	Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.	Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.	Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.	Short-term impacts to fisheries habitat will be caused when road construction at stream crossings disturbs stream beds.
Long-term improvement, due to intensive grazing management, is expected along 3 miles of stream presently in suboptimum condition.	Long-term improvement, due to intensive grazing management, is expected along 8 miles of stream presently in suboptimum condition.	Long-term improvement, due to intensive grazing management, is expected along 6 miles of stream presently in suboptimum condition.	Long-term improvement, due to intensive grazing management, is expected along 8 miles of stream presently in suboptimum condition.	Long-term improvement, due to intensive grazing management, is expected along 6 miles of stream presently in suboptimum condition.
Special management on 24,400 acres would maintain or slightly improve habitat quality over the long term.				

	The sale of public lands could have adverse impacts on wildlife habitat if the lands were converted to uses not compatible with wildlife.	Wilderness, special management areas, and an emphasis on habitat management on 55,920 acres would maintain or improve habitat quality over the long term. The sale of public lands could have adverse impacts on wildlife habitat if the lands were converted to uses not compatible with wildlife.	Wilderness, special management areas, and an emphasis on habitat management on 55,920 would maintain or improve habitat quality over the long term. The sale of public lands could have adverse impacts on wildlife habitat if the lands were converted to uses not compatible with wildlife.	Wilderness, special management areas, and an emphasis on habitat improvement on 68,120 acres would maintain or improve habitat quality over the long term. The sale of public lands could have adverse impacts on wildlife habitat if the lands were converted to uses not compatible with wildlife.
Socioeconomic. Forest management has created 57 primary jobs in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created. Grazing management would contribute an increase in ranch income of less than one percent to lessees and permittees over the long term. PILT payments for BLM lands in Granite, Missoula, and Powell counties will continue at about $19,600 per year. Recreation on public lands will contribute at least $1,400,000/year to the local economy. The recreation opportunities provided enhance the western lifestyle which incorporates backcountry activities, hunting, and visiting historical sites. Mining on public lands will contribute jobs and money to the local economy.	Socioeconomic. Forest management would create 77 primary jobs in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created. Grazing management could contribute an increase in ranch income of up to two percent to lessees and permittees over the long term. PILT payments for BLM lands in Granite, Missoula, and Powell counties may be affected by land adjustment if lands from different counties are exchanged. Grazing permittees and lessees may also be affected by such adjustments. Recreation on public lands will contribute about the same opportunities as in Alternative A. Mining on public lands will contribute jobs and money to the local economy.	Socioeconomic. Forest management would create 53 primary jobs or four less than Alternative A in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created. Grazing management could reduce ranch income by as much as one percent to lessees and permittees over the long term. Mining in traditional areas will continue to provide jobs and money to the local economy. The withdrawal of 29,217 acres would preclude any future development and the number of jobs and money that could be generated from mineral exploration and development would not materialize. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A. Land adjustments would have similar impacts as in Alternative B.	Socioeconomic. Forest management would create 62 primary jobs in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created. Grazing management impacts would be similar to Alternative C. Mining in traditional areas will continue to provide jobs and money to the local economy. The withdrawal of 15,830 acres would preclude any future development. The effect on jobs and money, which could be generated, would be small. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A. Land adjustments would have similar impacts as in Alternative B.	Socioeconomic. Forest management would create 63 primary jobs in the private sector cutting, planting, and improving timber stands. Secondary jobs of processing the timber would also be created. Grazing management impacts would be similar to Alternative A. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A. Land adjustments would have similar impacts as in Alternative B. Mining in traditional areas would continue to provide jobs and money to the local economy. The withdrawal of 2,000 acres would preclude any future development. The number of jobs and money that would not be generated would be very small.

Stipulations prohibiting surface occupancy are applied primarily to river tracts along the Blackfoot and Clark Fork rivers, to cultural and historical sites (Garnet, Coloma, Blackfoot City, etc.), and to the special management areas. These stipulations are the most restrictive and allow only directional drilling. Although directional drilling is a negative impact because of cost feasibility, it should not prove to be significant as many of these are scattered tracts, small in size, and have moderate to low potential.

No ACECs are recommended in this alternative.

Other Leasables

Under this alternative, 5,536 acres are available for phosphate leasing, all in areas of high potential. Approximately 4,023 acres have been leased; 1,893 acres were issued with standard stipulations and 2,130 acres with special stipulations. Since no wilderness areas and ACECs are proposed in areas of phosphate leasing, no impacts would occur. An additional road closure in Warm Springs Creek could temporarily impact phosphate exploration and development because of seasonal disruption of exploration.

Locatables

Mineral location is available on a total of 203,850 acres, of which 22 percent (45,000 acres) contain recorded unpatented mining claims. Twenty-three percent (46,386 acres) are classified as having high potential for locatable minerals. Under the 3809 Regulations, 6,360 acres are under a notice for exploration and development surface disturbance. The notice obligates the mining operator to reclaim any disturbed sites.

Mineral exploration is presently restricted within the four Wilderness Study Areas (WSAs). This constraint could be significant in the southern portion of the Wales Creek WSA where mineral potential is moderate to high and where claimants have located approximately 40 mining claims. Their exploration activities may not degrade or impair wilderness values or suitability. This may affect their use of mechanized equipment in the WSA and cause the claimant to file a plan of operations under the 3802 Regulations. However, under Alternative A, minerals will not be impacted since no wilderness will be designated, but the WSAs will become special management areas that will require a notice in most cases or a plan of operations. Also, no ACECs are proposed that could restrict mineral development.

Road closures, existing and potential, impose an impact on mining claimants as they may be required to file a plan of operations under the 3809 Regulations, rather than a notice. This could be significant in areas of high potential, as it would be more costly and time consuming to fulfill the plan of operations requirements.

Presently, 500 acres are withdrawn by R&PP and C&MU classifications, primarily to protect recreation, scientific, and cultural sites. Potential powersites, existing power projects, and administrative sites occupy 1,300 acres and are withdrawn for the use of other government agencies. Both classifications and withdrawals, totalling 1,800 acres, segregate those areas against locatable mineral location. This is a significant localized impact to the minerals resource, especially in areas of high potential such as Garnet, Coloma, etc. However, such areas represent less than one-half percent of the public land base. The effect is a loss of opportunity and incentive to prospect for locatables, as no claims may be located to protect the right to a discovery. However, under this alternative all BLM classifications (R&PP and C&MU) are to be dropped on 500 acres, leaving only the withdrawals intact and 160 acres proposed for formal withdrawal, so this would be a positive gain in availability for land open to mineral location.

Salables

Presently, 98,747 acres are available for the disposal of salable mineral materials, while 48,360 acres are unavailable for salable disposal because of existing withdrawals, classifications, valid unpatented mining claims, and riparian protection areas. Since the classifications are to be dropped under this alternative, 500 additional acres would be opened for the disposal of salable minerals, creating a positive impact.

Under the guidance for WSAs, salable permits may be issued for the removal of mineral materials so long as the operation can be conducted consistent with the nonimpairment criteria. Since this alternative does not designate any wilderness areas, the WSAs will become special management areas, still allowing issuance of mineral material permits.

Conclusions

Recommending the four WSAs for nondesignation would mean fewer restrictions on the minerals industry as a whole, and dropping the 500 acres of BLM classifications (R&PP and C&MU) would increase the area open to mineral exploration. Operations would be regulated by the 3809 Regulations.

Any additional closures of existing roads would restrict some mineral exploration and development activities. This could be locally significant in areas of high potential; but over the whole resource area, the effect would be minor.

Impacts On Lands

Land Ownership

Under this alternative, public land would remain fixed, perpetuating the existing intermingled land ownership pattern. Improvement of the land pattern through land tenure adjustment would not occur.

More than half the tracts are under 160 acres, and over 70 percent are less than 320 acres. This means a continuing need for boundary identification, which costs in excess of $1,800/mile, making program expenses high. The additional difficulties of coordination, access, and distance involved in efforts to manage isolated and scattered tracts would continue.

Access

At present BLM has legal public access to 28 percent of its tracts, which represent 78 percent of the public land base. Administrative access is available to an additional 4 percent of the tracts. At least 25 percent of the tracts without access require active management. No additional access would be secured under this alternative and these management needs would not be met.

Withdrawals and Classifications

Withdrawals have been secured by other federal agencies for powersites, power projects, and administrative sites. These total less than 1,600 acres. They will be reviewed under the current BLM withdrawal review process.

In 1973 over 200,000 acres were under classification (de facto withdrawal) by BLM. In 1982 these classifications were reviewed and reduced to 500 acres. Under all alternatives classification would be removed from the remaining 500 acres. This would increase the public land base available for land adjustment or multiple use.

Major Utility Corridors

Identified avoidance areas for major utility corridors in this alternative comprise approximately 25 percent of the resource area, including special management areas, major riparian areas, elk summer and fall habitat, developed and undeveloped recreation areas, and cultural sites. The special management areas represent the bulk of the acreage and could result in increased costs for utilities by requiring additional miles of line to avoid these areas.

Conclusion

Alternative A, with no change in the intermingled land ownership pattern and with no additional access, would preclude improvement in land ownership pattern and effective management. Possible transportation and utility corridor routes would be limited to 75 percent of the public lands. The avoidance areas are mainly high elevation, roadless areas that pose significant obstacles for efficient transportation and utility siting.

Impacts on Recreation Resources

Impacts of forest managment on the five Special Recreation Management Areas (SRMAs) would not be significant. The RMAs would be protected and managed under Standard Operating Procedures.

The 12 existing walk-in hunting areas are managed under Standard Operating Procedures and would not be significantly impacted. Potential hiking and riding trails, on the other hand, could be severed, the tread could be destroyed, or use shifted to other areas by road construction or by timber harvesting activities. The recreation experience would also be reduced with temporary losses of visual quality (see visual quality section). These impacts could, in part, be mitigated by project location and design.

The amount and quality of hunting would be impacted by timber management activities. Since the quality of hunting is closely linked to habitat conditions and numbers of game animals, negative impacts on habitat and wildlife numbers would adversely impact hunting and positive impacts would enhance hunting. Roading would provide increased access while cutting units would increase sight distances. Both of these actions would reduce game security areas and increase hunting pressures. Impacts from roading and timber harvesting can partly be mitigated with strategically located road closures.

Although the experience of hunting in unroaded areas would be reduced, there is a possibility of an increase in the number of hunters. New roads that remain open seasonally or yearlong would increase opportunities for motorized vehicle use, snowmobiling, and cross-country skiing.

The cumulative impacts would be significant by benefiting some recreation activities and adversely impacting others. During the 20-year life of the plan, 14,400 acres of previously unharvested CFL would be harvested and nearly 200 miles of new roads would be constructed. Motorized vehicle use, road hunting, and auto touring would increase if roads remain open, while activities associated with unroaded backcountry would decrease.

Livestock impacts on SRMAs or on most dispersed recreation opportunities would not be significant. However, impacts would occur to the quality of hunting where livestock use and big game use of forage and cover conflict. The degree of impact would be defined in the wildlife section.

Impacts of oil and gas activities on recreation use would not be significant, if standard and special stipulations are imposed on key recreation use areas. Highly significant adverse impacts could occur from ground breaking activities associated with mineral exploration and development. Impacts on water quality downstream from mining activities would also adversely impact recreation use. These impacts would be localized and could occur in riparian areas, recreation sites, and special management areas. SRMAs where the greatest impacts may occur include the Blackfoot River, the Clark Fork River, and Garnet Ghost Town. However actual disturbance is somewhere between 10 to 20 acres per year and all the above sites except Garnet have been withdrawn or have low potential.

Motorized vehicle use would enjoy a high potential level of activity since 107,720 acres would be available for use. Vehicles would, however, be restricted to open roads and trails. Seasonal and yearlong road closures would further restrict motorized vehicle use.

Impacts of utility and transportation corridors on recreation use would be minimized because sensitive areas would be avoided by rights-of-way. Since no public lands are open to land adjustment under Alternative A, no adverse impacts to recreation would occur to existing patterns and use. However, there would be no opportunity to acquire recreation lands that are threatened by development activity. Isolated tracts, without access, would remain unavailable for recreation use.

No wilderness designations are proposed under Alternative A; however, 28,500 acres would be managed under special management. These lands would be available for recreation users attracted to unroaded backcountry opportunities. Also, those lands not yet roaded or developed would temporarily offer these types of experiences.

Conclusion

Under this alternative, most recreation opportunities have been provided for by directing developmental activities away from key recreation sites. Certain dispersed recreation activities would be impacted by road construction and timber harvesting but mitigation could reduce these impacts. Grazing and mining could impact recreation sites and activities if they occur in riparian zones particularly along major rivers and streams. Benefits would accrue to motorized vehicle use and to unroaded backcountry activities under this alternative. Cumulative impacts to roadless recreation opportunities would result from timber harvesting and road construction. Other cumulative impacts would not be significant.

Impacts on Visual Resource Management

Under this alternative, timber management practices and cutting unit configuration would be constrained in visually sensitive VRM Class II and III areas thus maintaining present visual quality on about 24,500 forested acres. Timber harvest practices would be adjusted to accommodate scenic values on an additional 2,560 acres in riparian multiple use zones, undeveloped recreation sites, and visual corridors. However, some road construction and slash burning would be allowed. The visual impacts of roads and burning in sensitive areas would be mitigated in part during project planning and implementation.

Ninety-seven percent of the timber volume is harvested from lands with low to moderate visual sensitivity. In most cases, these areas are classified as background or seldom seen and would fall into VRM Class IV. Because of the location and characteristics of these lands, visual impacts from timber harvesting, road construction, and prescribed burning would not be significant.

The cumulative impact on visual resources would be one of constant change primarily in vegetative heights and contrasts. During the 20-year life of the plan, 24,000 acres of timber would be harvested and nearly 200 miles of road would be constructed. Most of the cutting would be concentrated in VRM Class IV areas and the overall impact would be an acceptable change in the visual landscape while maintaining the visual quality of a VRM Class IV rating.

The grazing management impacts to visual resources would not be significant. Most of the proposed range improvement projects would be located in VRM Class III and IV landscapes. Relatively minor or localized negative impacts would result if 22 miles of fence, 2 miles of pipeline, 7 cattleguards, and 25 springs were constructed. All of these developments would meet VRM guidelines.

The existing levels of oil and gas leasing would result in minimal impacts to visual resources. Visually sensitive areas along major travel and recreation corridors are within the zones where surface occupancy is prohibited for oil and gas leases. Developments associated with this activity could be accomplished within the guidelines for VRM classes.

Overall, current levels of mineral activities would not create significant visual impact. High negative impacts could occur from ground breaking activities in localized areas if these sites occur in riparian areas, recreation sites, special management areas, and visual corridors.

Existing levels of motorized vehicle use and management would have insignificant impacts on visual resources. Approximately 38,000 acres are not available for motorized vehicle use, and 108,000 acres are available but restricted to open roads and trails.

If guidelines for implementing VRM classes (Appendix F) are followed, utility and transportation corridor developments, would have minimal adverse impacts on visual resource values. Corridors would avoid 30,060 acres in riparian protection zones, special management areas, recreation sites, and cultural sites. The location and design of projects in visually sensitive corridors would be further constrained to minimize visual impacts.

Since no public lands are open to land adjustment under this alternative, no direct impacts are evident. Benefits could be derived, however, by retaining visually sensitive lands such as areas seen from I-90, MT-200, MT-10, and the Rock Creek corridor.

No wilderness designations are proposed under Alternative A; however 28,500 acres are recommended for special management with management emphasis on maintenance of wildlife habitat, watershed, and dispersed recreation. Positive benefits would be derived to visual resources by retention of existing visual characteristics.

Conclusions

Generally, the negative impacts to visual resources from timber management, road construction, range developments, oil and gas leasing, or developments of utility or transportation corridors would be evident but not significant if adequate mitigation measures are imposed. Strict adherence to VRM guidelines during project planning and implementation would minimize most negative impacts. Certain development projects would create significant short-term impacts in localized areas but would be mitigated to reduce long-term impacts. Cumulative impacts from timber harvesting and road construction over the next 20 years would cause changes to appear constantly in the visual landscape.

Impacts on Cultural Resources

Implementation of the provisions of the National Historic Preservation Act and 36 CFR 800 will jointly serve to eliminate impacts to significant cultural resource properties under this or any other alternative. While residual effects due to vandalism, wildfire, and trespass actions can be expected to occur, no change in such residual effects can be contemplated under any alternative. Interpretive and nonimpairment prescribed management of significant cultural resource properties operates as a beneficial effect in limiting the potential for such residual effects. Increased activity in various management areas will serve to increase the number of identified cultural properties since new properties are located at a projected rate of one property per 360 acres of inventory directed by specific project needs. A proportion of these cultural resource properties will be added to the managed list and acreage allocations can be expected to increase.

The environmental consequences to cultural resources under this and all other alternatives is beneficial. With implementation of BLM regulations, policies, and prescribed management of significant cultural resource properties such properties will be protected against adverse impacts and be enhanced for public enjoyment and education.

Impacts on Wilderness Resources

This alternative would set aside timber harvest on 27,737 acres in Wales Creek, Gallagher, Hoodoo, and Quigg West WSAs. This would protect the WSAs from adverse impacts associated with timber harvest.

Approximately 27,200 acres including Wales Creek, Quigg West, Gallagher Creek, and portions of Hoodoo Mountain would remain unavailable for livestock grazing. This will protect these WSAs from impacts to wildlife habitat and watershed. The special management guidelines indicate that livestock grazing will not be allowed because these areas have been determined to be unsuitable for grazing (see Appendix L).

Wilderness values would be adversely affected by recommending 27,737 acres as unsuitable since the lands would be open to mineral entry. In the short-term exploration-connected vehicle use, drill pads, and the visual and audio impact of exploration and development could mar a wilderness experience. Impacts such as access roads and drilling pads could degrade the solitude and natural appearance of the areas in the long term.

All acres in the former WSAs would be classified as avoidance areas for transportation and utility corridors. These projects, if undertaken, could result in major impacts on the natural scenery of the area and in both the short-term, due to construction disruption and noise, and in the long-term, because of the appearance of utility projects, would significantly impact solitude values.

Selection of this alternative would allow the public access to existing open roads and trails but would continue the prohibition on motorized vehicle use off roads and trails. Temporary noise and visual impacts on solitude values caused by motorized vehicles and an increase in compaction, vegetative removal, and rutting would occur on existing trails.

Wilderness values would be adversely affected by nondesignation as potential developments would be allowed without protective stipulations to protect natural and solitude characteristics. However, special administrative site-specific management aimed at the protection of wildlife, watershed, and dispersed recreation opportunities would tend to safeguard some of these wilderness characteristics.

Conclusion

A total of 27,737 acres would not be recommended suitable for wilderness, but would receive protective special management. This means that wilderness values would be open to more short and long-term impacts.

Protective special management would tend to minimize some of these impacts. However, long-term protection would not be as secure since an administrative commitment to protect the values of an area is not as permanent as wilderness designation.

Impacts on Forest Resources

Under current management approximately 1,216 acres could be harvested at a rate of 6,370 mbf/year from an available CFL base of 87,920 acres (78 percent of the total CFL). This level of harvest would require about 9.6 miles of new road annually and remove approximately 58 acres annually from productive forest land. This is an acceptable impact if the forest resource is to be managed.

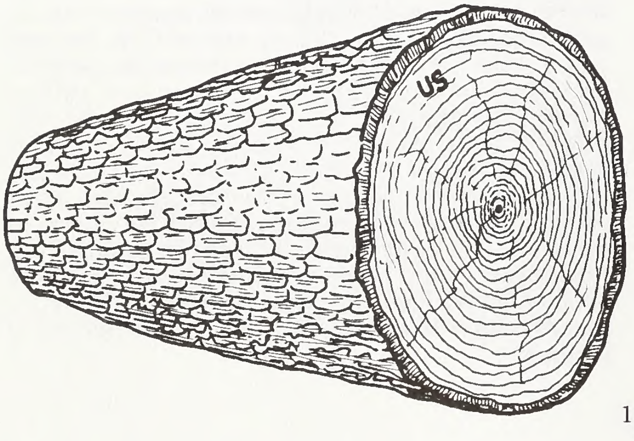
Practices that restrict forest management, such as limiting the size of cutting units and scheduling of entries, would be imposed on 21,820 acres (24 percent of the available CFL). These restrictions will result in a 20 percent reduction in volume available on the 21,820 acres. This equates to an overall 5 percent reduction in volume available from the CFL base. Forest management would not be practiced on an additional 24,540 acres (22 percent) of CFL. As compared to the harvest without any restrictions or withdrawals this represents 24.7 percent less volume harvested annually. If withdrawn areas become infested with insects or disease, they cannot be treated by timber management activities. Therefore, they can become host areas to outbreaks. Also, some restrictions may require uneven-aged management and optimum productivity will not be approached. Logging costs will be greater where cutting units are smaller, where logs have to be winched out of buffer stands, and where selection or single tree harvest is required.

Sale scheduling will probably be the most significant problem in restricted management areas, requiring an additional 12 to 20-year delay before reentering cutting units or adjacent stands. Also visually sensitive areas may restrict the type of harvest methods but will not reduce the volume harvested. The present ownership pattern can result in scheduling problems because of restrictions for watershed protection. Delayed entries are necessary where private lands have been harvested in a drainage to the extent that watershed balance is in danger. Significant increases in water production can be expected where a drainage has been harvested to more than 20 percent clearcut equivalency. A ten-year delayed entry is about the minimum period required to overcome the impact.

Livestock grazing can have an impact on seedling establishment, survival, and vigor. Over half the CFL is in the Douglas-fir habitat type series and will probably be shelterwood cut. The understory vegetation in this habitat series produces substantial amounts of forage when the overstory is opened. Approximately 67 percent of the series is under 45 percent slope and susceptible to livestock grazing. Under this alternative nearly 14,700 acres of CFL (17 percent) in this series will be grazed. Years of grazing can develop a sod ground cover that makes natural regeneration difficult. Tree seedlings can be damaged by trampling. The significant problem areas are generally localized where cattle tend to concentrate for shade, salt, water, or bedding. Proper grazing on cutover CFL, after the seedlings are five years old, is acceptable. Temporary fencing or herding should alleviate the most serious problems.

Conclusion

The combination of management restrictions, withdrawn or set aside areas, and available CFL result in an annual yield or harvest of 6,370 mbf which is a significant reduction from the potential level of timber harvest. Management restrictions require smaller cutting units and adjusted scheduling of sales which hinder optimum timber management. Construction of logging roads would remove approximately 58 acres annually from production. Livestock grazing causes localized impacts which can be alleviated by temporary fencing or herding. Overall this alternative has a moderately significant impact on forest resources, primarily due to the 24,540 acres of CFL unavailable for management.



Impacts on Range Resources

Under this alternative, there will be no short-term adjustments in any of the 84 grazing leases. In the long term, livestock forage production would increase by about 1,051 AUMs, a 17 percent increase over current licensed use. These increased AUMs are primarily due to the cumulative effect of intensive grazing management systems already in place and the continued creation of transitory range as a result of timber harvest. Appendix I displays the short-term target allocations and projected AUM figures for the long term, by allotment, for each alternative.

Over the long term, range improvement costs for Alternative A will total approximately $217,400 for material and labor. Table 4-4 summarizes the improvements. Maintenance on the existing range improvements are estimated to cost $299,300 for the 20-year period and $57,500 for expected maintenance of improvements yet to be constructed.

TABLE 4-4

RANGE IMPROVEMENTS AND COST DATA FOR ALTERNATIVE A

Improvement/ Treatment	Unit	Quantity	Cost*
Weed Control	Acres	200	3,400
Fences	Miles	22	110,000
Cattleguard	Each	7	17,500
Springs	Each	25	62,500
Pipeline	Miles	2	24,000

*Cost data over 20-year period includes materials and labor.

The short-term impacts on vegetative condition would generally be a continuation of present trends. Those leases already under an intensive grazing management system would remain under intensive management. All ten existing AMPs show either a static or upward trend. Most of the remaining 74 custodial leases show a static vegetative condition. Adverse impacts to vegetation and livestock grazing can be mitigated by careful placement and design of range improvements and treatments coupled with tighter compliance control. Because this alternative proposes no short-term change in present management direction, it has a negligible impact on livestock grazing.

Long-term vegetative trend under this alternative is projected to remain static on 74 leases and show a slight upward trend on the 10 existing AMPs. Current projections indicate that approximately 6,633 acres in fair and poor condition in the existing AMPs will be improved up one condition class to good and fair condition. Figure 4-1 illustrates the projected changes in vegetative condition in the long term. Figure 4-1 is a comparison of only those lands under grazing lease and does not include approximately 35,391 acres administratively excluded or otherwise unavailable for livestock grazing.

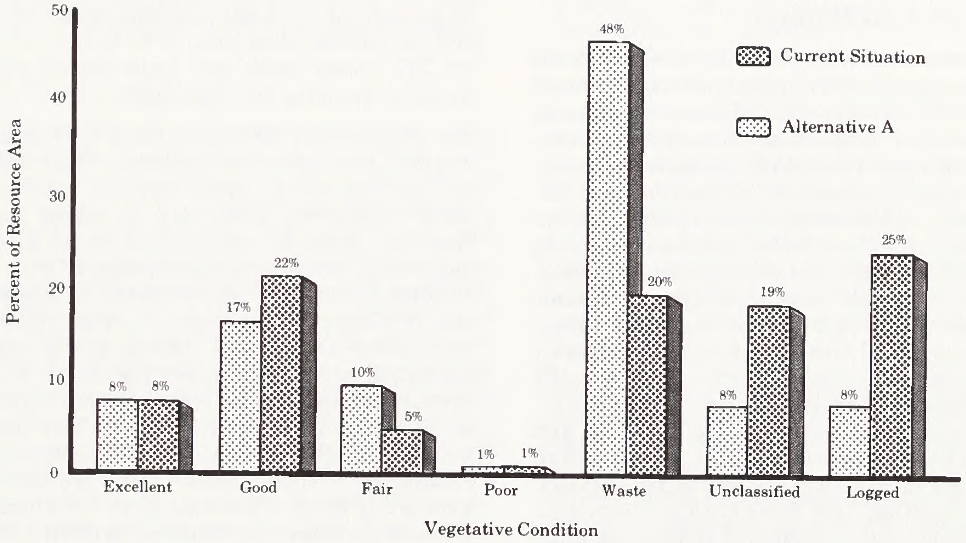


Figure 4-1

Predicted Changes In Vegetative Condition Under Alternative A

Presently there are 27,200 acres where livestock grazing has been excluded. Under Alternative A these acreages will remain excluded from livestock grazing. Most of these excluded areas are heavily forested and offer an insignificant quantity of usable livestock forage. These scattered tracts are in the Chamberlain, Wales, Yourname, Cottonwood, and Gallagher Creek drainages.

Weed control efforts will consist of control work on approximately 200 acres over the long term. This control effort will be primarily directed at roadside infestations of knapweed, musk thistle, and leafy spurge in an effort to control the advance of these weeds along logging roads up into areas free of weeds. Approximately ten acres of roadside area (three to four miles of road) will be treated using chemical spray each year. Spot weed control efforts are primarily designed to eradicate or lessen the density of weeds in a relatively small area to improve the quantity of the native grasses and forbs and reduce the weed seed source for the immediate area. Knapweed, for instance, can reduce livestock forage by 67 percent and double the amount of soil erosion when it invades rangeland (French, Lacey 1983).

Conclusion

This alternative proposes no short-term adjustments in grazing preference; a long-term increase in grazing preference of 17 percent is projected primarily due to more available forage from timber harvest areas. Livestock operators will see no short-term changes in grazing, but overall livestock production should improve over the long term. Both structural and nonstructural range improvements and maintenance are proposed at a long-term total cost of $581,000 or an average annual cost of $29,050.

Modest improvement in vegetative condition is expected in the long term. About 52 percent of lands available for livestock grazing should be in good and excellent condition as compared to 33 percent presently.

Tracts presently unleased would continue to be unleased through the long term. Some short duration livestock grazing trespass can be expected on these unleased tracts, but generally this type of incidental use is quickly resolved.

Impacts on Wildlife and Fisheries

This alternative would propose managing 74,500 acres (51 percent of the total land base) with stated wildlife habitat goals in the MA guidelines. The remaining acreage (71,160 acres) would be managed with wildlife considerations through application of Standard Operating Procedures and mitigative or restrictive recommendations.

Mountain Coniferous Habitat

The resource area contains about 130,000 acres (89 percent) of mountain coniferous habitat. Timber management on 87,920 acres of CFL occurs primarily on big game summer range at the rate of 1,216 acres treated and 9.6 miles of new roads constructed annually. The short-term impacts of this action will disturb most species and displace some species. Potential impacts include reduced fall security cover for big game; loss of effective habitat due to increased vehicle access; loss of thermal and security cover immediately adjacent to winter range foraging areas; reduced big game use of clearcuts and moist sites by alteration of adjacent timber stands; loss of specific vegetative successional stages (mature, old-growth) necessary to meet many species requirements; and disturbance of effective seasonal habitat during high energy demand periods such as fawning, calving, nesting, brood rearing, and winter. Short-term mitigating restrictions and actions will reduce the magnitude of site-specific impacts in most cases. There will be few or no immediate beneficial impacts.

The long-term adverse impacts could potentially be large considering 63,460 acres (72 percent) of CFL does not have stated MA wildlife goals, only protective stipulations for elk habitat components and possible road management restrictions. Over the life of the plan, harvest and new road construction will amount to about 24,320 acres treated and 192 miles of new road. Habitat alterations by timber activities such as clearcut, seed tree, etc. are expected to create about 8,269 acres (34 percent) of open forage. About 15,961 acres (66 percent) of timbered forage will be created through shelterwood harvest methods and commercial thinning. The consequence of this alteration in vegetative structure and composition will result in more acres in early successional stages, fewer acres in late successional stages, and a trend toward even-age management. The long-term response of wildlife to changes in vegetation and access will cause shifts in species and populations to match requirements for suitable habitat.

The balance of CFL in the mountain coniferous habitat, approximately 24,400 acres (27 percent), occurs primarily at lower elevations constituting big game winter range or special management areas where timber activities are guided by wildlife goals. Timber management actions and consequential adverse impacts to wildlife habitat will be moderate in the short term due to mitigating restrictions. Habitat quality would be maintained or slightly improved over the long term for certain species or species groups.

Timber management on the remainder of the forested land (about 42,140 acres) would be limited to rights-of-way, sanitation, or salvage necessary to meet wildlife or other resource goals. Therefore impacts to wildlife would be minimal.

Range management would accur in 118,460 acres, with the mountain coniferous habitat contributin substantially to the total. Intensive livestock management is prescribed for about 35,663 acres or about 30 percent of the total 118,460 acres and would have stated wildlife objectives. The balnce of the acreage (82,797 acres) would not have stated wildlife objectives for grazing management.

The impacts on wildlife habitat by livestock grazing ranges from direct forage competition with big game species to nesting, brood rearing, and foraging conflicts with small game and nongame species. Additionally, there is evidence of social intolerance by some big game species for livestock. Within the forest habitat types, various successional stages occur as a result of timber management practices which create transitory range and access roads into formerly unlogged areas. The majority of the existing allotments include forested areas not currently accessible to livestock grazing; however, these areas provide suitable habitat for many wildlife species. Vegetative changes in these areas will produce additional accessible livestock forage that will ultimately cause wildlife habitat use conflicts within allotments. In many cases allotment boundaries and pastures are unfenced, but depend on natural barriers such as uncut timber or terrain to control livestock movement. As these areas are developed through logging and road building, livestock move into previously ungrazed areas (the cutting units themselves or parks and riparian zones). Mitigative measures such as fencing, leaving vegetative barriers, or blocking roads and trails to livestock movement may be successful in reducing livestock and wildlife conflicts in the short term. In the long term, the conflict will increase as more acres of previously uncut forest are harvested and grazed. The dispersement of livestock over a greater area of one or more allotments increases the chances of social intolerance by elk.

Through the implementation of 10 AMPs, 3,290 acres (45 percent) unsatisfactory big game winter range forage is expected to improve to satisfactory condition. However, 4,069 acres of unsatisfactory winter range forage outside of AMP areas will remain in unsatisfactory condition. Present satisfactory winter range forage (23,592 acres) on all allotments is expected to continue in satisfactory condition. The exclusion of grazing from 27,200 acres will enhance wildlife habitat primarily in elk summer and fall range.

Mineral exploration and development in the mountain coniferous habitat ranges from the mining of gold, phosphate, and barite to the removal of sand and gravel. The short-term impacts of mining cause disturbance or displacement of wildlife on small acreages with some loss of habitat. Duration of extraction is highly variable for each site, ranging from intermittent work each year for a few years to continuous work for many years.

The short-term impacts from oil, gas, and phosphate development are essentially negligible during the exploration phase through standard and special stipulations. However, the stipulations will not fully mitigate the long-term impacts throughout the duration of development and production. Based on a past low interest in oil and gas activity and only one phosphate mine, the outlook for widespread habitat loss is slight.

Mountain Grassland Habitat

The resource area contains about 9,500 acres (7 percent) of mountain grassland habitat. Timber management has a direct influence on the value of these mountain grasslands for wildlife habitat. Silviculture prescriptions in the edge between forest and grassland will play an important role in determining habitat quality of the grasslands. Harvest and thinning activities adjacent to the grasslands will have short-term impacts through displacement or disturbance of wildlife. Mitigation through the application of management area guidelines will serve to reduce adverse results in the short term for most grasslands. Long-term impacts from vegetative alteration on adjacent forest land should be successfully mitigated for grasslands lying within areas where wildlife habitat management will be emphasized. Those sites within areas emphasizing timber management would have few mitigative restrictions.

The majority of acres in the mountain grassland habitat will be affected by range management practices and occur as both summer and winter big game ranges. Those allotments under intensive management (AMPs) either contain or will be revised to include stated wildlife goals achieved through livestock distribution and time of use. In the short term, substantial improvement of unsatisfactory grassland winter ranges is expected following full implementation of intensive grazing management. In the long term, all unsatisfactory winter range under intensive livestock management would be raised to satisfactory forage condition. Those acres of grassland in allotments outside of intensive grazing management are expected to remain in the same forage condition for the short and long term. (See acreage figures presented under the range management discussion for mountain coniferous habitat in this alternative.)

Mineral exploration and development impacts in the mountain grassland habitat are similar to those discussed under mountain coniferous habitat.

Riparian and Wetland Habitat

The resource area contains about 6,100 acres (4 percent) of riparian and wetland habitat. Timber management activities under this alternative would essentially be excluded on 760 acres, be restricted by wildlife goals for old-growth timber corridors and nongame habitat diversity on 640 acres, and be guided by practices to achieve water quality standards in other areas of forest development. A substantial number of acres occur in special management areas potentially unavailable for timber management. Short-term impacts are partially mitigated through management area guidelines and SOP. Long-term impacts from site disturbance will be negligible with the exception of old-growth loss.

Range management affects about 80 percent of riparian and wetland habitat. Through full implementation of intensive grazing management, 2,038 acres of unsatisfactory riparian is expected to improve to satisfactory condition. This amounts to 49 percent improvement. About 2,166 acres outside of intensive management allotments would remain in unsatisfactory condition. Short-term impacts will show gradual improvement in the riparian condition attributed to grazing. Over the long term, intensive management acres would be in satisfactory condition, but unsatisfactory acres outside of AMPs would continue as unsatisfactory riparian. Satisfactory riparian (637 acres) in all existing allotments would continue in satisfactory condition for both the short and long term.

Mineral exploration and development impacts in riparian areas are the least mitigatable for the placer operations. Sand and gravel permits will not be allowed in riparian areas. Oil, gas, and phosphate development will be designed for riparian protection. Impacts discussed under the mountain coniferous habitat are similar for mining claims, however the importance is exponential because the riparian zone provides a higher diversity of habitat for a larger number of species. Currently there are about 98 acres of riparian in mineral development areas.

Aquatic Habitat

The resource area has about 67 miles of streams and rivers producing fish. Timber management activities associated with this habitat are most critical because of the need to build roads. The application of riparian management area guidelines and Standard Operating Procedures avoid or reduce adverse impacts on the aquatic habitat. Short-term impacts will be encountered for stream crossings. However long-term impacts are negligible except for periodic maintenance or replacement.

The range management program affects 48 percent (29 miles) of aquatic habitat. Currently there are 15 miles (52 percent) in optimum aquatic condition, 6 miles (21 percent) in suboptimum condition, and 8 miles (27 percent) unsurveyed in all allotments. Through intensive grazing management, 3 miles (50 percent) of suboptimum habitat would be expected to improve through increased bank stability and cover. Short-term response will be a slight increase in fish production, with long-term results of stabilizing more optimum habitat.

Within aquatic habitat, the impacts of mineral exploration and development are greatest for development of mining claims. When mining development takes place in the aquatic system, there is the potential for complete change (destruction) of the site for fish as well as degrading downstream habitat. Such impacts are total removal of bank and adjacent vegetation; redistribution of bank and streambed materials to spoil piles, settling ponds, and downstream deposition; total loss of macroinvertebrate populations; loss of spawning habitat; increase in water temperature; and higher risk of contamination from petroleum products, toxicants, and heavy metals. Both short-term and long-term impacts are subject to mitigation through current laws and regulations; however, the impacts are expected to remain significant for localized areas. Other energy and mineral exploration and development are subject to mitigative stipulations to protect sites in both the short and long term.

Threatened and Endangered Species Habitat

There is continuous monitoring for threatened and endangered species occurrence and use, with recommendations for appropriate mitigative stipulations. There will be no significant impacts on threatened or endangered species habitat under the alternative.

Conclusion

Under Alternative A, there would be few or no short-term benefits from timber management, and potential long-term adverse impacts would occur on big game summer ranges and nongame habitat in mountain coniferous habitat because wildlife habitat management would not be emphasized. At lower elevations timber management impacts on big game winter range would be moderated in the short term and a trend toward maintenance or slight improvement in the long term. Range management impacts on habitat at upper and lower elevations are partially mitigated in both the long and short term through stated AMP wildlife goals on 30 percent of the allotment area (35,663 acres of public lands). Conflict between livestock and wildlife would continue on 70 percent of the grazing allotments in both the short and long term, particularly in areas of newly created transitory range. Of the total unsatisfactory big game winter range forage, 3,290 acres (45 percent) would be expected to improve to satisfactory condition. The development of mining claims will cause significant impacts on wildlife habitat in both the short and long term. However, relatively few acres are currently disturbed by mining development. Other energy and mineral leases have stipulations to mitigate impacts on wildlife habitat. With the current activity level, short and long-term impacts are negligible for phosphate, oil, and gas activities.

Timber management will have some short-term impacts on the mountain grassland habitats but few long-term impacts. Intensive livestock management will show long-term forage improvement on AMP acres but little or no improvement outside of AMP allotments (about 55 percent of total unsatisfactory big game winter range forage). Mineral impacts will be about the same as described for mountain coniferous.

Riparian and wetland habitats will experience partially mitigated short-term impacts, and there will be negligible long-term impacts with the exception of old-growth loss in timber management areas without wildlife goals. Through intensive range management 2,038 acres (49 percent) of unsatisfactory riparian is expected to improve to satisfactory condition in the long term. The remainder of unsatisfactory and satisfactory riparian will continue in current condition. Mineral activity impacts on wildlife habitat are most significant where there is development of mining claims in both the short and long term compared to other energy and mineral development. However, at the completion of mining activity rehabilitation of the site is required. Other energy and mineral development is either not permitted or the leases require mitigative measures to protect wildlife habitat.

Impacts to aquatic habitat from timber management actions are primarily associated with road location and stream crossing designs. Short-term impacts will occur, but long-term impacts will be negligible with proper location and design. Livestock grazing through intensive management allotments is expected to improve 50 percent of the current suboptimum habitat to optimum condition over the long term. Impacts of mineral activities are similar to those discussed under riparian habitat.

Under this alternative, there would be no land adjustment. The consequences of this action would preclude increased wildlife habitat management opportunities through exchange or purchase.

There will be no significant impacts on threatened or endangered species habitat under this alternative.

Impacts on Social and Economic Conditions

Under this alternative current management direction would continue, therefore, the effect on current social and economic conditions would continue. There would be 6,370 mbf of timber harvest per year. This would yield approximately 57 jobs. These jobs are relatively well paid compared to other area jobs. In addition, since there are many mills and processing plants in the Missoula area, more of the benefits of timber harvest income remain in the area. The availability of BLM-managed timber helps add continuity to the timber harvest in the area, with the majority of the cut coming from Forest Service and private timberlands. At an average 1981 income of $19,984 per job, employment income of these jobs equals $1,139,088 in direct income to the economy. At an average stumpage value of $46.80 per thousand board feet, the timber harvested is valued at $298,166 per year. Indirect income from this harvest would amount to an additional $894,498 from the labor sector in the region. The social impact of this timber harvest level involves the continued stability of harvest levels to help insure a continued level of employment in the wood products industry. This stability of harvest, however, is not a major determinant in preserving a given level of employment. At the present time the health of the housing market regionally and nationally has a far greater effect upon employment stability than a stable supply of harvestable timber.

The range management program if continued at the present rate would see an increased availability of forage for livestock on 25 of 84 allotments. Projected improvements in grazing lands and increases in AUMs would result in a less than one percent increase in income to ranchers in each size class (see Appendix R). Therefore, there would be no significant effect on the present ranching community if the current policies are followed.

Presently, the Garnet Resource Area is open for mineral entry on all but 1,800 acres. Under this alternative this situation would continue. The primary commodities which are now being mined are phosphate, barite, and gold. Employment at the existing mines is expected to remain steady for the forseeable future. If the price of gold remains at present levels or increases, a few more placer gold operations may locate on public lands. The availability of public lands for mineral development represents an opportunity to develop resources; therefore, BLM has little control over whether or not a mineral resource is developed. Significant social impacts of mineral development would only occur if development is much more extensive than that which is currently taking place.

The potential for significant oil and gas discoveries in the area is presently unknown. Seismic testing and exploration are currently going on in the area. These activities provide a few jobs for the local economy. The extent of other employment in the oil and gas industry in the area will depend upon discovery of any deposits and the extent of such deposits.

The present lands program classifies all land in the resource area for retention in federal ownership. This would create no social or economic changes over the current status quo as long as the Payment in Lieu of Taxes (PILT) program is funded. If the lands in Missoula, Powell, and Granite counties are funded at the same rate as in fiscal year 1983, the payment would total approximately $19,619. This payment represented a 94.23 percent proration of the total entitlement of $20,820. The total PILT payment for the three counties for all federal lands in FY 83 amounted to $349,651. In general, the income to the counties from PILT payments is greater than the property taxes they would receive if the lands were private lands. (This may not be true for productive timberland sites.)

The economic consequences of both the recreation and wildlife programs are tied to the human use of these resources. The management of BLM lands provides opportunities for recreation such as hunting, fishing, camping, snowmobiling, cross-country skiing, and visiting historic sites such as Garnet Ghost Town.

Public lands provide habitat for many species of wildlife. The primary big game species are elk and deer. These species provide approximately 30,000 hunter days of recreation per year. These hunter days accounted for $799,500 in expenditures on the part of the hunters with an additional $573,241 in additional indirect benefits to the regional economy. Factors other than habitat which may affect herd size are beyond the control of the BLM. To the extent that these other factors remain constant, public lands will continue to help provide at least 30,000 hunter recreation days per year. Some waterfowl and upland bird hunting is also provided.

Other recreation in the area involves camping, boating access, hiking, and off-road vehicle use. This coupled with 12,000 visitor days at Garnet Ghost Town is another substantial economic benefit. This would likely increase over time as Garnet Ghost Town becomes more well known and as the population in the area grows. This alternative would continue to provide recreation opportunities for primarily local residents for the forseeable future.

Under this alternative, no wilderness is designated and therefore there would be no significant impact on the social and economic condition. This alternative will have no social or economic effects caused by air quality, soil and water, visual resources, and cultural resources. This applies across all alternatives.

Conclusion

This alternative would maintain the current situation as far as social and economic conditions are concerned. Small increases in ranch income in the long term would not be significant.

ALTERNATIVE B

Impacts on Air Quality

Impacts on air quality will be the same as described in Alternative A but slightly greater in extent as related to increased timber management activities (12.9 vs 9.6 miles of road constructed per year; 8,560 mbf vs 6,370 mbf harvested per year). Land available for oil and gas leasing is 13,837 acres greater than for Alternative A with 1,460 acres withdrawn from mineral entry as compared to 1,800 acres in Alternative A. As in Alternative A these intermittent impacts are considered to be insignificant.

Conclusion

Alternative B would adversely impact air quality in localized areas during the time of project construction or slash burning. However, these impacts would not be significant to overall air quality.

Impacts on Soil and Water Resources

Under this alternative, 205,586 acres are available for oil and gas leasing. A total of 205,426 acres would be leased with standard stipulations while 160 acres would be leased but closed to surface occupancy. Oil, gas, and mineral leasing has the potential to have a greater impact upon soil and water resources under this alternative than Alternative A. The general impacts from oil, gas, and minerals activities would be the same as Alternative A and are not expected to be significant except in riparian areas.

Alternative B has 145,660 acres available for grazing with 9,211 AUM's. There will be 95,532 acres under AMP's compared to 35,663 acres for Alternative A. This alternative will have 11,939 acres in excellent vegetative condition, 32,812 acres in good condition, 3,857 acres in fair condition, and 39 acres in poor condition. Alternative A will have 7,739 acres in fair condition and 1,223 acres in poor vegetative condition. A significant improvement in vegetative condition is expected under this alternative. Since watershed condition is directly comparable to vegetative condition, watershed condition would also improve under this alternative.

Forest management activities will produce a 37 percent increase in timber management activities for Alternative B as compared to Alternative A. With appropriate timber sale and road layout, substantial increases in impacts are not anticipated but will approximate those expected to occur in Alternative A, and should not be significant.

Allotment Management Plans, Standard Operating Procedures, Management Directives, and Regulations will be applied in this alternative, as in Alternative A, to maintain or enhance site productivity, water quality, and stream channel stability.

Conclusion

Expanded application of AMPs, even with a 55 percent increase in AUMs, will significantly improve vegetative condition and, therefore, also watershed condition. AMP implementation will result in reduced soil compaction and streambank sloughing, and increased ground cover thereby reducing soil erosion, improving vegetative productivity, and having a beneficial effect upon water quality.

Substantial increases in timber production and minerals activities under this alternative have the potential to increase sediment production from road construction and use. The application of mitigative measures will reduce these additional impacts to an acceptable level.

Impacts On Energy and Minerals

Oil and Gas

Under this alternative fewer restrictions would be placed on the exploration and development of energy resources. Surface occupancy with standard stipulations would be permitted on 99 percent (205,426 acres) of the land available for oil and gas leasing. Leases issued with standard stipulations are the least confining to the lessee, while providing protection for other important resources. The only special stipulations implemented under this alternative involve 160 acres of no surface occupancy, which are primarily cultural and historical sites scattered throughout the resource area (Garnet, Coloma, Blackfoot City, etc.).

Dropping the four Wilderness Study Areas from wilderness consideration, would permit less restrictive exploration to occur. If tracts of federal surface are disposed of through land exchange or sale, potential problems with split estate ownership can be created. While these problems do not effect the availability of the land for energy exploration, they may make exploration more complicated, more time consuming, and more expensive. The major reason for this is the loss of surface control which might constrain access. However the potential is generally low and the impacts should be insignificant.

Other Leasables

Under this alternative, any new leases will be issued with standard stipulations only. Negative impacts may occur if lands were exchanged with the United States reserving minerals thus spliting the surface estate and mineral interests. This could disrupt and delay future mineral development on approximately 1,200 acres identified in the open category adjacent to or within known phosphate leasing areas.

Locatables

Mineral location is available on a total of 203,850 acres in the resource area and 23 percent (46,386 acres) are classified as having high potential for locatable minerals. Under this alternative active mining operations would still be required to submit either a notice (five acres or less disturbance per year) or a plan of operations (five acres or more disturbance per year) under the 3809 Regulations. These obligate the miner to reclaim any disturbed sites.

Dropping the four wilderness study areas from wilderness consideration would permit less restrictive exploration to occur and allow exploration to continue.

Disposal of any lands, where the United States reserves minerals and splits the surface and mineral estate, can create an adverse impact to mineral access or development. While this does not affect the availability of the land for mineral exploration and development, it can make exploration more complicated, more time consuming, and more expensive.

Revoking the R&PP and C&MU classifications (500 acres) would increase the opportunity and incentive to explore for locatable minerals. Less than one percent (1,460 acres) would remain withdrawn or be withdrawn from mineral entry; these sites, located mainly along rivers and at cultural sites, are segregated against locatable mineral location. This is a localized impact to the minerals resource, especially in areas (less than one-half percent) of high potential. The effect is a loss of opportunity and incentive to prospect for locatables, as no claims may be located to protect the right to a discovery.

Salables

Generally, most public lands are available for the disposal of salable mineral materials. Those lands which would be unavailable for salable disposal include areas of withdrawals, classifications, and valid unpatented mining claims. Since the classifications (C&MU and R&PP) are to be revoked under this alternative, 500 additional acres would be opened for the disposal of salable minerals, creating a positive impact.

Through this alternative, if tracts of federal surface are disposed of by a land exchange or sale, problems of split estate ownership can be created. While these problems do not affect the availability of the land for mineral development, it can make exploration more complicated, more time consuming, and more expensive.

This alternative does not designate any wilderness areas, thus allowing issuance of mineral material permits and creating a positive impact.

Conclusions

This alternative would increase the area open to mineral exploration and impose fewer restrictions on exploration and development. This would be accomplished through the revocation of 500 acres of BLM classifications (R&PP and C&MU) and the nondesignation of the four WSAs (27,737 acres). Operations would be regulated by the 3809 Regulations.

The disposal of lands with split surface and mineral estate, could create an adverse impact to minerals. Although the exchange or sale may not affect the availability of land for exploration and development, it can make exploration more complicated, more time consuming, and more expensive. This would be mitigated if minerals were exchanged along with the surface estate, where possible.

Impacts On Lands

Land Ownership

Under Alternatives B, C, D, and E, 126,872 acres will be designated in retention zones where BLM intends primarily to retain or enhance the existing public land holdings. Public land in most of these zones amounts to sizeable acreages, and most are in reasonably consolidated holdings or contain values appropriate for public ownership. Individual tracts in retention zones may be exchanged when significant management efficiency or greater public values would be acquired. Under some circumstances a tract may be sold to serve an important public purpose. Public land acreage within these zones is not expected to decline but may increase because land acquired in exchanges will be concentrated in these zones.

The remainder of the public lands, 18,788 acres, will be open to consideration for retention, exchange, transfer, or sale. In general these lands are smaller tracts, widely scattered, and without legal or physical access. The preferred action for any lands which fit the disposal criteria will be to exchange them for lands within a retention zone. Sale may offer a simpler, quicker method of disposing of isolated tracts with negligible public values, but it decreases the long-term potential for a desirable land ownership pattern by depleting the stock of land available for future exchanges. Exchange will balance the impacts of disposal with those of acquisition and should result in a net increase in public values.

Over the next 20 years, approximately 25 percent (4,697 acres) of the open lands will leave public ownership, 95 percent of this by exchange. Several factors enter into this estimate. The required procedures and occasional obstacles involve substantial time and expense. Many of the scattered tracts were left out of patent applications because of difficult topography and lack of agricultural value. Most of these tracts are too isolated and inaccessible for commercial or residential use. Numerous tracts are encumbered by prior rights such as mining claims. Field examination of specific tracts may reveal values, such as threatened or endangered wildlife species, which would dictate retention in public ownership.

However, even this moderate land tenure adjustment program will result in an improved ownership pattern, reduced management difficulties, and an overall increase in public values.

Access

Under this alternative and all the remaining alternatives, public access is proposed to 21 tracts affecting 9,500 acres. Administrative access is proposed to 62 tracts affecting 8,150 acres. All the additional access proposals coincide with land retention zones; this will expand opportunities for public use and further aid in management of the public lands.

Withdrawals and Classifications

Impacts will be the same as Alternative A.

Major Utility Corridors

Identified avoidance areas would decrease markedly under this alternative, to 160 acres, representing historic and cultural sites. Essentially the entire resource area would be available for further analysis and possible routing.

Conclusion

Alternative B provides for consolidation of public lands and acquisition of important resource values through a land adjustment program. An increase in access would provide for greater public use and improved manageability.

Impacts on Recreation Resources

Impacts to recreation would be similar to Alternative A, except an additional 24,080 acres of CFL would be subjected to timber management activities. SRMA lands along the Clark Fork and Blackfoot rivers are largely noncommercial forest land, so they would not be impacted.

Dispersed recreation would be more heavily impacted, especially potential hiking and riding trails and undeveloped recreation sites. With less emphasis on wildlife habitat and without roadless backcountry reserves, opportunities for hunting in an unroaded area would be significantly reduced. Other roadless backcountry activities would also be reduced or eliminated. Specific impacts are discussed under Alternative A.

Negative impacts to visual quality, positive impacts to motorized vehicle use, and possible increased hunter access would expand with increased timber management activities. Impacts would increase at an accelerated rate during the 20-year period resulting from cumulative timber harvesting on 33,200 acres and 258 miles of new road construction. The impact of new roads can be partially offset by mitigating measures such as road closures.

Impacts of grazing management would be similar to those discussed under Alternative A, except that increased livestock grazing could cause greater impacts and conflicts. Expanded impacts would occur in riparian areas, recreation sites, and roadless backcountry. Hunting opportunity could be reduced both in terms of availability and numbers of game animals. The quality of hunting experiences could also decrease as conflicts between livestock and big game animals increase.

Negative impacts from oil and gas leasing would be significantly greater than in Alternative A in that special stipulations on surface occupancy would not be imposed. This would open all riparian areas, recreation sites, WSAs, special management areas, and other recreation lands to leasing and possible development. Oil and gas activities without special stipulations would reduce the opportunities and the quality of recreation experiences on most lands with special recreation values. The impacts of mineral exploration and development would be similar to Alternative A.

All lands in the resource area would be available to motorized recreation use. Seasonal closures and other restrictions outlined under Alternative A would be continued.

Since all lands in the resource area, except cultural sites, would be available for utility and transportation corridors, the impacts on recreation could be significant. The development of roads and utility lines could disturb high value recreation sites in riparian, roadless, and special management recreation areas. In this alternative, these sites are available for consideration for corridor development.

Lands designated for consideration for ownership adjustment do not contain high recreation values. However, some help to provide a scenic backdrop for the Clark Fork and Blackfoot rivers. Dispersed recreation, mostly hunting, motorized vehicle use, and associated activities that occur on these lands would generally translocate to other lands under an exchange proposal. However, these values could be lost under sale actions.

No lands would be set aside as wilderness or special management areas. Roadless backcountry recreation opportunities would therefore be replaced by activities not directly associated with a roadless experience over the long term.

Conclusion

Recreation resources and opportunities would be significantly altered by Alternative B. High value recreation areas including dispersed recreation areas could be adversely impacted by development pressures. Significant impacts on and conflicts to hiking and riding trails, the quality and quantity of hunting and camping, and similar recreation activities could arise from timber management, grazing management, oil and gas leasing, mineral development, and utility and transportation corridors. In addition roadless backcountry recreation opportunities would decrease and be replaced by other forms of recreation.

Impacts on Visual Resource Management

Almost all of the CFL would be available for timber management. This would include riparian zones, special management areas, visual corridors, and other areas of visual sensitivity.

Maximizing timber production would require roads and cutting units in foreground and middleground viewing areas along the Clark Fork River, Blackfoot Rignificant negative impacts. Similarly, intensifying timber harvest in other VRM Class III areas would create additional negative impacts.

The impacts of timber harvest and associated road construction activities including cumulative impacts in seldom seen VRM Class IV areas would be similar to that discussed under Alternative A.

Negative impacts on visual resources from grazing management would be greater than described under Alternative A. More miles of fences and pipelines, more cattleguards and spring developments would have greater impacts on scenic quality. A larger number of these projects would be located in visually sensitive areas, thereby creating additional visual impacts. However, these impacts would be insignificant.

Negative impacts from oil and gas leasing and possible development would be substantially greater than described under Alternative A. All lands except cultural sites would be leased without special stipulations. This could open riparian lands, visual corridors, special management areas, recreation sites, and other visually sensitive lands to leasing and development. Visual impacts of mineral exploration and development would be the same as those described under Alternative A.

Motorized vehicle use would be limited to open roads and trails so impacts would be insignificant as described under Alternative A.

All lands, except for 160 acres of cultural sites, would be available for utility and transportation corridors. This would create a significant adverse impact on visually sensitive areas such as riparian areas, recreation areas, visual corridors, and special management areas. In designated seldom seen, VRM Class IV areas, the impacts would not be significant.

Under Alternative B, there is potential for minor adverse visual impact. A portion of the 18,788 acres open for consideration to land adjustment could be disposed of through sale or exchange. Approximately 1,600 acres of these lands are within the visually sensitive areas seen from I-90, MT-200, and the Rock Creek corridor. Disposal of lands in these corridors would subject them to development that would not be constrained by VRM guidelines. However these tracts are isolated, surrounded by vast acreages in private ownership, and small (average 100 acres each). In effect, the visual quality of these lands could be reduced if not retained in public ownership but would likely remain in character with adjacent land. Impacts to other lands in the resource area would not be significant (see discussion in Alternative A).

No lands would receive wilderness designation under this alternative. The special management lands of Alternative A would become VRM Class IV in this alternative. These lands are seldom seen so impacts to visual quality are not significant.

Conclusions

Visual impacts would be significant under Alternative B, particularly in areas of high visual sensitivity. Riparian zones, recreation sites, special management areas, and visual corridors would be the most seriously impacted because most constraints on development activities would be removed. Timber harvesting, road construction, grazing management, oil and gas leasing and development, and utility and transportation corridor development would all significantly reduce visual quality in existing sensitive areas resulting in reductions of VRM classes.

Visual impacts in VRM Class IV seldom seen areas would be similar to those outlined under Alternative A. Impacts in sensitive areas would be long term, extending well beyond the life of this plan.

Impacts on Cultural Resources

Impacts on cultural resources are the same as listed for Alternative A.

Impacts on Wilderness Resources

The impacts from mineral entry and oil and gas development, motorized vehicle use, and utility ROWs would significantly reduce the wilderness characteristics. All lands would be available for timber cutting, and acreage actually harvested in WSAs would be about 3,737 acres during the life of the plan. Extensive harvesting operations would totally degrade wilderness values in the harvest area in both the short and long terms, at least until new trees hide stumps and downed material. In the short term, the visual and audible impact of cutting operations and haul roads would disrupt wilderness values. In the long term, the cut stumps, haul roads, slash, and other signs of harvest activity would detract from the natural appearance of the area and from its solitude opportunities.

All lands in the former WSAs would become available for livestock grazing. Livestock management would use fewer mitigative measures to protect wilderness values. In addition, increased impairment through less restrictive use of motorized vehicles for project construction and maintenance and livestock supervision could occur.

Wilderness characteristics would be adversely affected by nondesignation because natural and solitude values would not be preserved by protective stipulations and because the extent and pace of development would likely be significant and rapid. There would be no special management commitments made to enhance wildlife, watershed, dispersed recreation, and, secondarily, wilderness values.

All 27,737 acres would be available for consideration for utility and transportation corridor development. Demand for corridors in these areas is not anticipated to be high during the life of the plan. Impacts from possible development are the same as those outlined in Alternative A.

Conclusion

Without wilderness protection, 27,737 acres would be available for extensive resource development. Wilderness values could be irreversibly impaired by timber harvest; livestock grazing project construction and maintenance; hard rock mining; oil and gas development; utility ROW operations; and, in some areas, motorized vehicle activity.

Impacts on Forest Resources

About 1,660 acres could be harvested at a rate of 8,560 mbf/year from an available CFL base of 112,000 (99.5 percent of the total CFL). This is a 35 percent increase in acres treated, a 33 percent increase in annual volume harvested, and a 27 percent increase in CFL available for timber management as compared to the base program in Alternative A. These are significant because they are nearly the highest level of sustained volume attainable and greatest number of CFL acres available. Approximately 12.9 miles of road would be constructed annually or 35 percent more mileage than Alternative A. This results in 78 acres being removed from the land base annually for roads (34 percent greater than Alternative A). This is an acceptable impact in order to manage the forest resource.

No acres would receive management restrictions imposed by other resources and only 0.4 percent of the CFL would be unavailable for timber management as compared to 22 percent in Alternative A. Nearly all areas of existing and potential insect and disease infestations could be treated and thus improve the long-term forest productivity. Logging costs would be less than in Alternative A, and there would be no entry delays or scheduling problems caused by restrictions imposed by other resource programs. The proposed land adjustment program would benefit the forestry program by reducing the scattered ownership and lessening the possibility of delayed entries to accommodate watershed concerns. There will be a 36 percent increase in acres of CFL being grazed as compared to Alternative A, but this does not present a significant impact because of mitigating measures. This would be the most costly alternative to implement.

Conclusion

This alternative represents nearly the best opportunity to manage the timber resources. There are few management restrictions, withdrawals of CFL, or impacts associated with other resources. Construction of logging roads removes about 78 acres annually from production but is an acceptable impact. This alternative would be more costly to implement than Alternative A.

Impacts on Range Resources

Under this alternative, AUMs available for livestock grazing would be 9,211 AUMs over the short term. In the long term, AUMs available for livestock grazing would increase by 2,451 AUMs, a 27 percent increase. These additional AUMs will be a result of a greater number of allotments under intensive grazing management, improved vegetative conditions, and timber harvesting.

Under this alternative, there will be an increase in AUM production on 44 of the 84 total allotments. The greatest increase in AUM production can be expected on allotments under intensive grazing management that also have a substantial acreage of uncut timber that could be harvested. Table 4-5 summarizes the projected changes in AUM production in the short and long term under this alternative and between the long term under this alternative and Alternative A.

Over the long term, range improvement cost will total approximately $829,000. Table 4-6 summarizes the improvements. Maintenance on these new improvements plus existing improvements will add another $548,660 over the long term.

Vegetative conditions are projected to improve to good condition from fair condition on 11,699 acres and from poor to fair condition on 1,297 acres in the long term under this alternative. Significant improvement in vegetative condition can be expected on the 14 proposed new AMPs. Conditions on the existing 10 AMPs are already in satisfactory condition and under intensive management would be expected to remain satisfactory through the long term. Figure 4-2 illustrates the projected change in vegetative condition over the long term.

TABLE 4-5
PROJECTED CHANGES IN AUM PRODUCTION FOR ALTERNATIVE B

	AUMs	Change	Percent Change
Short term	9,211	3,281	55
Long term	11,662	4,681	67
Alternative A short term	5,930	0	0
Alternative A long term	6,981	0	0

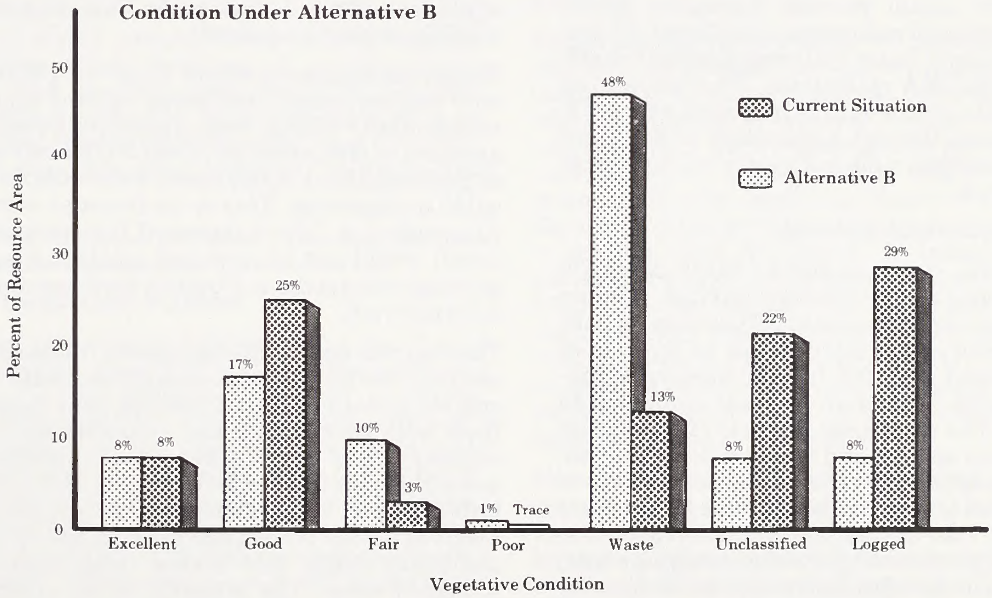
TABLE 4-6
RANGE IMPROVEMENTS AND COST DATA FOR ALTERNATIVE B

Improvement/ Treatment	Unit	Quantity	Cost*
Weed Control	Acres	500	8,500
Fences	Miles	104	520,000
Cattleguard	Each	32	80,000
Springs	Each	69	172,500
Pipeline	Miles	4	48,000

*Cost data over 20-year period includes materials and labor.

Figure 4-2

Predicted Changes In Vegetative Condition Under Alternative B



Under this alternative there will be no areas which are administratively excluded from livestock grazing. There is an estimated 19,382 acres that will remain unusable due to dense timber or steep slopes. These areas are scattered throughout the resource area.

Weed control work will be done on approximately 500 acres over the long term. This work will be both roadside control as described in Alternative A as well as the control of spot infestations in problem areas.

Conclusion

The major long-term consequence of this alternative would be a significant increase in vegetative condition and AUM production for livestock consumption. Transitory range created by timber harvest will provide the bulk of the forage and the use of this forage will be on a year to year basis.

Modest improvement in vegetative condition is expected in the long term. About 60 percent of lands available for livestock grazing should be in good and excellent condition as compared to 33 percent presently.

Range improvement construction and maintenance costs over the long term are projected to be $1,377,660 or an average annual cost of $68,883.

Impacts on Wildlife and Fisheries

This alternative would propose managing 32,500 acres of nonforest and noncommercial forest (22 percent of the total land base) with stated wildlife habitat goals in the MA guidelines. The remaining acreage (113,160 acres) would be managed with wildlife considerations through application of Standard Operating Procedures and mitigative or restrictive recommendations.

Mountain Coniferous Habitat

The resource area contains about 130,000 acres (89 percent) of mountain coniferous habitat. Timber management on 112,000 acres of CFL occurs on both big game summer and winter ranges at the rate of 1,660 acres treated and 12.9 miles of new roads constructed annually. This is an increase compared to Alternative A. The short-term impacts of this action will disturb most species and displace some species. Potential impacts include reduced fall security cover for big game; loss of effective habitat due to increased vehicle access; loss of thermal and security cover immediately adjacent to winter range foraging areas; reduced big game use of clearcuts and moist sites by alteration of adjacent timber stands; loss of specific vegetative successional stages (mature, old-growth) necessary to meet many species requirements; and disturbance of effective seasonal habitat during high energy demand periods such as fawning, calving, nesting, brood rearing, and winter. Short-term mitigating restrictions and actions will reduce the magnitude of site-specific impacts in most cases. There will be few or no immediate beneficial impacts.

The long-term adverse impacts could potentially be great considering 112,000 acres (100 percent) of CFL does not have stated MA wildlife goals, only protective stipulations for elk habitat components and possible road management restrictions. This is an increase compared to Alternative A. Over the life of the plan, harvest and new road construction will amount to about 33,200 acres treated and 258 miles of new road. This is an increase compared to Alternative A. Habitat alterations by timber activities such as clearcut, seed tree, etc. are expected to create about 11,288 acres (34 percent) of open forage. About 21,912 acres (66 percent) of timbered forage will be created through shelterwood harvest methods and commercial thinning. This is a 36 percent increase compared to Alternative A. The consequences of this alteration in vegetative structure and composition will result in more acres in early successional stages, fewer acres in late successional stages, and a trend toward even-age management. The long-term response of wildlife to changes in vegetation and access will cause shifts in species and populations to match requirements for suitable habitat. This is an increase compared to Alternative A.

There are no acres of CFL with stated MA wildlife goals. This is a decrease compared to Alternative A.

Timber management outside CFL for the remainder of the resource area (about 18,000 acres) in this habitat would be limited to rights-of-way, sanitation, or salvage timber activities that are necessary to meet wildlife or other resource goals. Therefore impacts to wildlife would be minimal.

Range management would occur on 145,660 acres, with the mountain coniferous habitat contributing substantially to that total. Intensive livestock management is prescribed for about 95,532 acres or about 66 percent of the 145,660 acres, and would have stated wildlife objectives. This is an increase compared to Alternative A. The balance of the acreage (50,128 acres) would not have stated wildlife objectives for grazing management. This is a decrease compared to Alternative A.

The impacts on wildlife habitat by livestock grazing ranges from direct forage competition with big game species to nesting, brood rearing, and foraging conflicts with small game and nongame species. Additionally, there is evidence of social intolerance by some big game species for livestock. Within the forest habitat types, various successional stages occur as a result of timber management practices which create transitory range and access roads into formerly unlogged areas. The majority of the existing allotments include forested areas not currently accessible to livestock grazing; however, these areas provide suitable habitat for many wildlife species. Vegetative changes in these areas will produce additional accessible livestock forage that can ultimately cause wildlife habitat use conflicts within allotments. In many cases allotment boundaries and pastures are unfenced, but depend on natural barriers such as uncut timber or terrain to control livestock movement. As these areas are developed through logging and road building, livestock move into previously ungrazed areas (the cutting units themselves or parks and riparian zones). Mitigative measures such as fencing, leaving vegetative barriers, or blocking roads and trails to livestock movement may be successful in reducing livestock and wildlife conflicts in the short term. In the long term, the conflict will increase as more acres of previously uncut forest are harvested and grazed. The dispersement of livestock over a greater area of one or more allotments increases the chances of social intolerance by elk. This is an increase compared to Alternative A.

Through the implementation of intensive grazing management (24 AMPs), 5,450 acres (74 percent) of unsatisfactory big game winter range forage is expected to improve to satisfactory condition. This is an increase compared to Alternative A. However, 1,909 acres of unsatisfactory winter range forage outside of AMP areas will remain in unsatisfactory condition. This is a decrease compared to Alternative A. Present satisfactory winter range forage (23,592 acres) on all allotments is expected to continue in satisfactory condition. This is the same compared to Alternative A. There is no land excluded from grazing to benefit wildlife habitat in this alternative.

Mineral exploration and development in the mountain coniferous habitat ranges from the mining of gold, phosphate, and barite to the removal of sand and gravel. The short-term impacts of mining cause disturbance or displacement of wildlife on small acreages with some loss of habitat. Duration of extraction is highly variable for each site, ranging from intermittent work each year for a few years to continuous work for many years. Due to current laws and regulations governing mining claims, there is limited opportunity for effective mitigation to reduce or prevent habitat loss either onsite or along access to the site.

The short-term impacts from phosphate, oil, and gas development are the same as Alternative A.

Mountain Grassland Habitat

The resource area contains about 9,500 acres (7 percent) of mountain grassland habitat. Timber management has a direct influence on the value of these mountain grasslands for wildlife habitat. Silviculture prescriptions in the edge between forest and grassland will play an important role in determining habitat quality of the grasslands. Harvest and thinning activities adjacent to the grasslands will have short-term impacts through displacement or disturbance of wildlife. Mitigation through the application of management area guidelines will serve to reduce adverse results in the short term for most grasslands. Long-term impacts from vegetative alteration on adjacent forest land would have few mitigative restrictions. This is an increase compared to Alternative A.

All of the acres in the mountain grassland habitat will be affected by range management practices and occur as both summer and winter big game ranges. Those allotments under intensive management (AMPs) either contain or will have stated wildlife goals achieved through livestock distribution and time of use. In the short term, substantial improvement of unsatisfactory grassland winter ranges is expected following full implementation of intensive grazing management. In the long term, all unsatisfactory winter range under intensive livestock management would be raised to satisfactory forage condition. Those acres of grassland in allotments outside of AMPs are expected to remain in the same forage condition for the short and long term. There are corresponding increases and decreases of unsatisfactory winter range forage compared to Alternative A. (See acreage figures presented under the range management discussion for mountain coniferous habitat in this alternative.)

Mineral exploration and development impacts in the mountain grassland habitat are similar to those discussed under mountain coniferous habitat.

Riparian and Wetland Habitat

The resource area contains about 6,100 acres (4 percent) of riparian and wetland habitat. Timber management activities under this alternative would not be constrained by stated wildlife habitat goals for this habitat. Activity would be guided by Standard Operating Procedures in the short term. Long-term impacts in the absence of stated wildlife goals will create substantial habitat loss, particularly old-growth trees. This is an increase compared to Alternative A.

Range management affects 100 percent of riparian and wetland habitat. Through full implementation of intensive grazing management, 3,585 acres of unsatisfactory riparian is expected to improve to satisfactory condition. This amounts to 85 percent improvement. About 619 acres outside of AMPs would remain in unsatisfactory condition. Short-term impacts will show gradual improvement in the riparian attributed to grazing. Over the long term, intensive management acres would be in satisfactory condition. Unsatisfactory acres outside of AMPs would continue as unsatisfactory riparian. This is a decrease compared to Alternative A. Satisfactory riparian (637 acres) in all existing allotments would continue in satisfactory condition for both the short and long term. This is the same compared to Alternative A.

Mineral exploration and development impacts in the riparian areas are the least mitigatable for the placer operations. Oil, gas, and phosphate development will have stipulations applied that are designed to protect riparian habitat. Impacts discussed under the mountain coniferous habitat are similar for mining claims. However, the importance is exponential because the riparian zone provides a higher diversity of habitat for a larger number of species. Currently there are about 98 acres of riparian in mineral development areas. This is the same as Alternative A.

Aquatic Habitat

The resource area has about 67 miles of streams and rivers producing fish. Timber management activities associated with this habitat are critical because of the need to build roads. The management area guidelines and Standard Operating Procedures avoid or reduce adverse impacts on the aquatic habitat. Short-term impacts will be encountered for stream crossings. However, long-term impacts may be potentially substantial without stated wildlife habitat goals in the adjacent riparian habitat zone under this alternative. This is an increase compared to Alternative A.

The range management program affects 62 percent (38 miles) of aquatic habitat under this alternative. There are 22 miles (58 percent) in optimum aquatic condition, 8 miles (21 percent) in suboptimum condition, and 8 miles (21 percent) unsurveyed in existing and additional allotments. Through intensive grazing management, 8 miles (100 percent) of suboptimum habitat would be expected to improve through increased bank stability and cover. Short-term response will be a slight increase in fish production, with long-term results of stabilizing more optimum habitat. This is an increase compared to Alternative A.

Within aquatic habitat, the impacts of mineral exploration and development are greatest for development of mining claims. When mining development takes place in the aquatic system, there is the potential for complete change (destruction) of the site for fish as well as degrading downstream habitat. Such impacts are total removal of bank and streambed materials to spoil piles, settling ponds, and downstream deposition, total loss of macroinvertebrate populations, loss of spawning habitat, increase in water temperature, and higher risk of contamination from petroleum products, toxicants, and heavy metals. Both short and long term impacts are subject to very limited mitigation through current laws and regulations. The impacts are expected to remain significant for localized areas. Other energy and mineral exploration and development are subject to mitigative stipulations to protect sites in both the short and long term. This is the same compared to Alternative A.

Threatened and Endangered Species Habitat

There is continuous monitoring for threatened and endangered species occurrence and use, with recommendations for appropriate mitigative stipulations. There will be no significant impacts on threatened or endangered species habitat under this alternative. This is the same as compared to Alternative A.

Conclusion

Under Alternative B, there would be few or no short-term benefits from timber management, and potential long-term adverse impacts would occur on big game summer ranges and nongame habitat in mountain coniferous habitat because wildlife habitat management would not be emphasized. This is an increase compared to Alternative A. At lower elevations timber management impacts on big game winter range are potentially great in both the short and long term. This is an increase compared to Alternative A. Range management impacts on habitat at upper and lower elevations are partially mitigated in both the long and short term through stated AMP wildlife goals on 66 percent of the allotment area 95,532 acres of public land). This is an increase compared to Alternative A. Conflicts between livestock and wildlife would continue on 34 percent of the grazing allotments in both the short and long term, particularly in areas of newly created transitory range. This is a decrease compared to Alternative A. Of the total unsatisfactory big game winter range forage 5,450 acres (74 percent) would be expected to improve to satisfactory condition. The development of mining claims will cause significant impacts on wildlife habitat in both the long and short term. However, relatively few acres are currently disturbed by mining development. This is the same compared to Alternative A. Other energy and mineral leases have stipulations to mitigate impacts to wildlife habitat. With the current activity level, short and long-term impacts are negligible for phosphate, oil, and gas activities. This is the same compared to Alternative A.

Timber management will have some short-term impacts on the mountain grassland habitats. This is an increase compared to Alternative A. Intensive livestock management will show long-term forage improvement in AMP acres. This is an increase compared to Alternative A. There will be little or no improvement outside of AMP allotments or about 26 percent of total unsatisfactory big game winter range forage. This is a decrease compared to Alternative A. Mineral impacts will be about the same as described for mountain coniferous. This is the same compared to Alternative A.

Riparian and wetland habitats will experience considerable impacts in both the short and long term. This is an increase compared to Alternative A. Through intensive range management 3,585 acres (85 percent) of unsatisfactory riparian is expected to improve to satisfactory condition in the long term. This is an increase compared to Alternative A. The remainder of unsatisfactory and satisfactory riparian will continue in current condition. This is a decrease in unsatisfactory riparian attributed to grazing compared to Alternative A. Energy and mineral impacts on wildlife habitat are the same as Alternative A.

Impacts to aquatic habitat timber management actions are primarily associated with road location and stream crossings. Short-term impacts will occur, but long-term impacts will be greater in the absence of stated wildlife goals in the adjacent riparian zone. This is an increase compared to Alternative A. Livestock grazing through intensive management allotments is expected to improve 100 percent of the current suboptimum habitat to optimum condition over the long term. This is an increase compared to Alternative A. Impacts of mineral activities are similar to those discussed under riparian habitat.

Under this alternative 18,788 acres could be considered for land base adjustment through sale or exchange. An estimated 235 acres may be sold. This could cause minor adverse wildlife habitat impacts if the lands were converted to other uses not compatible with wildlife. The exchange program offers the potential to bring private or state lands having equal or greater wildlife values into public ownership. Wildlife concerns including threatened and endangered species would receive consideration at the beginning of any lands transaction discussions. Wildlife habitat values will be evaluated in the environmental assessment that accompanies an exchange proposal. This is an increase compared to Alternative A.

There will be no significant impacts on threatened or endangered species habitat.

Impacts on Social and Economic Conditions

Under this alternative commodity production will be emphasized. The annual harvest will be 8,560 mbf. This harvest level would create 77 forest related jobs. This is an increase of 20 jobs over the current situation. At an average 1981 income of $19,984 per job, direct employment income equals $1,538,768 per year. At an average stumpage value of $46.80 per thousand board feet, the timber harvested is valued at $400,608 per year. An indirect income to the economy of $1,201,824 from the employment income is also available to the regional economy. As under Alternative A, this timber would add to the stability of employment in the timber industry in the area. The health of the housing market has a greater impact upon current stability than the availability of a given amount of BLM timber offered for sale.

The range management program would increase availability for forage for livestock on 41 of 84 allotments. The average increase by size class (see Appendix R) ranges from 55 percent for the Class 2 operations to over 25 percent for the Class 1 operations. This would change the income of these average ranches by, from less than 1 percent to a high of 2.3 percent for the Class 1 operations. Some individual operations which would have substantially greater than average increases in AUMs would receive greater income increases. This analysis assumes that the rancher can use increased AUMs during the summer and early fall. In some cases, the rancher's operation would preclude the full use of these increases due to lack of forage availability during other seasons. It also assumes that the rancher has the financial resources to take advantage of increased AUMs. Table 4-7 lists the number of ranches by size class that will be affected in the short and long term.

There would be a greater opportunity for mineral, oil, and gas development. In addition, in those areas open for oil and gas leasing, there will be more acres available under standard stipulations and fewer acres under seasonal and special stipulations prohibiting surface occupancy. While these actions may

TABLE 4-7

NUMBER OF RANCHES IN EACH SIZE CLASS AFFECTED BY THE GRAZING PROGRAM IN ALTERNATIVE B

Size Class	Ranches Affected in the Short Term	Ranches Affected in the Long Term
1	7	7
2	8	7
3	11	12
4	15	15

make it easier and cheaper to develop resources, it does not mean that these resources will be developed or that employment and income levels will change.

If gold prices remain constant or increase there may be some increase in placer mining activity over the life of the plan. Jobs in oil and gas exploration may also be available in the short term. Long-term prospects are dependent upon whether and how much oil and gas is found.

About 18,788 acres are identified for consideration for sale or exchange. It is assumed that 25 percent of the acreage will be exchanged or sold or a total of 4,697 acres. Of this 4,697 acres it is assumed that 4,462 will be exchanged and 235 will be sold. It is further assumed that the 4,462 acres would be exchanged within the three county area (Missoula, Powell, and Granite). The action could affect the amount of money an individual county receives from PILT. Granite and Powell counties presently receive $.10 per acre in PILT for eligible federal lands in their counties. Missoula County presently receives $.75 per acre less payments made from other federal programs in the previous year. In 1983, PILT payments to the counties at a 94.23 percent prorated level were $67,219 for Powell County, $66,818 for Granite County, and $215,614 for Missoula County. In addition, the final payment is dependent upon the amount of money appropriated by Congress in any given year for PILT. Also, the counties would collect property tax from those acres which go into private ownership. If all of the exchanges are carried out, 26 allotments could be cut from BLM grazing permits. While the total number of AUMs may not change, the users of these allotments could be adversely affected while others would benefit since BLM grazing permits are inexpensive relative to other forage opportunities.

Most of the lands are available for development including road construction. This would increase the opportunity for those interested in roaded or motorized forms of recreation. The supply of these opportunities are such that use of these areas for recreation at present would not increase greatly.

This alternative would reduce the acreage on which wildlife habitat management is emphasized. This, over a period of time could either stop the growth of big game herds or lead to a reduction in big game numbers. No estimate of such changes has been made, however, if the quality of the hunting should decrease, demand will likely shift to other areas.

The overall quality of habitat for many species will remain the same or in some cases may deteriorate. This could reduce the populations of some species, thus reducing the opportunity for utilizing the consumptive and nonconsumptive uses of wildlife.

Under this alternative those areas which are presently roadless would not be protected. Therefore, the opportunities for roadless recreation on BLM lands in the Garnet Resource Area would be reduced. Under present management which would continue under each alternative, walk-in hunting areas would increase and other recreation opportunities would be maintained.

Conclusion

This alternative would provide the greatest increase in possible jobs and income in the forest industry and increased income in the ranching industry. There would be the possibility of 77 forest related jobs under this alternative or 20 more than the present situation. Ranch income increases are not regionally significant, but would be significant to those individuals receiving the larger increases. This alternative would also affect the amount of PILT payments made to counties due to lands which are proposed to be sold or exchanged. A total of less than $3,500 for the three counties is involved. The operators on 26 grazing allotments could face a reduction in income from the loss of BLM grazing while others could see an increase in income from the gain of BLM grazing privileges.

ALTERNATIVE C

Impacts on Air Quality

Impacts on air quality will be of the same kind but slightly less than for Alternative A. Annually timber production and road construction will be 5,960 mbf (1,120 acres) and 9.0 miles respectively for Alternative C in comparison to 6,370 mbf (1,216 acres) and 9.6 miles of new road for Alternative A. Land area available for oil and gas leasing is identical for Alternatives A and C, with 29,600 acres withdrawn from mineral entry for Alternative C as compared to 1,460 acres for Alternative A. Intermittent impacts caused by air pollution associated with these activities are not significant.

Conclusion

Impacts on air quality will be slightly less than for Alternative A and will be of short duration and substantially insignificant.

Impacts on Soil and Water Resources

Land area available for oil and gas leasing is less than for Alternative A. Area withdrawn from mineral entry is 29,600 acres compared to 1,460 acres for Alternative A. Impacts resulting from these activities are similar to those occurring in Alternative A but should be reduced to a significant degree because of land area withdrawn from mineral entry.

Alternative C has 107,530 acres available for grazing with 3,595 AUM's. There will be 85,026 acres under AMP's as compared to 35,663 acres and 5,935 AUM's for Alternative A. This alternative will have 23,899 acres in excellent vegetative condition, 19,804 acres in good condition, 4,923 acres in fair condition, and 21 acres in poor condition. Alternative A will have 7,739 acres in fair condition and 1,223 acres in poor vegetative condition. Improvements in vegetative condition will be significant. Since watershed condition is directly comparable to vegetative condition, watershed condition would also improve under this alternative.

Forest management activities will produce 8 percent less timber in Alternative C as compared to Alternative A, and impacts are not expected to be significant as long as appropriate timber sale and road layout are utilized.

AMPs, Standard Operating Procedures, Management Directives, and Regulations will be applied in this alternative, as in Alternative A, to maintain or enhance site productivity, water quality, and stream channel stability.

Conclusion

Increased use of AMPs in conjunction with a 40 percent reduction in total AUMs will cause a significant improvement in vegetative condition and, therefore, also watershed condition. AMP implementation will result in reduced soil compaction and streambank sloughing, and increased ground cover thereby reducing soil erosion, improving vegetative productivity, and having a beneficial effect upon water quality.

The reduction in timber production and minerals activities under this alternative will slightly reduce potential increases in sediment production from road construction and use.

Impacts on Energy and Minerals

Oil and Gas

Under this alternative more acres would have restrictions placed on the exploration and development of energy resources than under Alternative A. Surface occupancy on oil and gas leases would be allowed on 175,289 acres (85 percent) of the surface and mineral estate administered by the BLM in the resource area. Fifty-three percent (109,239 acres) of occupancy would be permitted with standard stipulations, while 33 percent (66,050 acres) of occupancy would be permitted with seasonal restrictions. Leases on 2,560 acres would prohibit surface occupancy. Thirteen percent (27,737 acres) would be closed to leasing in the wilderness areas.

Areas with special stipulations total 68,610 acres and include both seasonal restrictions and stipulations prohibiting surface occupancy. Seasonal restrictions are located in existing and potential road closure areas. If additional road closures are imposed, exploration and development activities could be restricted; although, even in areas of moderate potential this impact should not prove to be significant.

Stipulations prohibiting surface occupancy would be applied primarily to an ACEC, cultural and historical sites, and special management areas scattered throughout the resource area. These stipulations have a negative impact to development because of cost feasibility; but they should not prove to be significant, as these are scattered tracts and have moderate to low potential. The ACEC will have positive impacts on geological education. The area is designated because of its use by local universities.

Under this alternative, all four areas (27,737 acres) being studied for wilderness would be recommended as suitable for wilderness designation. After December 31, 1983 all wilderness areas were closed to new mineral leasing. If not leased previous to designation, oil and gas reserves will not be leased, resulting in an undetermined economic loss. Two of the WSAs are rated as being moderate potential and two are rated as having low potential (see Table 4-8). This could be a significant negative impact, as it eliminates any possibility of developing the mineral resource that may be there.

If tracts of federal surface are disposed of through land exchange or sale (18,788 acres are considered for possible adjustment), potential problems with split estate ownership can be created. While these problems do not affect the availability of the land for energy exploration, they may make exploration more

TABLE 4-8

ALTERNATIVE C: WILDERNESS STUDY AREA'S ENERGY AND MINERAL POTENTIAL

Energy & Minerals	Potential & Known Reserve Rating	Acres Outside Wilderness	Acres in Quigg West	Acres in Wales Cr.	Acres in Hoodoo	Acres in Gallagher Cr.
Oil & Gas	High	0	0	0	0	0
	Medium	117,910	0	11,580	0	4,257
	Low	0	520	0	11,380	0
Metallic Minerals (gold, silver, copper, lead, zinc, etc.)	High	46,386	0	0	0	0
	Medium	71,424	520	11,580	0	4,257
	Low	0	0	0	11,380	0
Industrial Minerals (phosphate, limestone, barite, etc.)	High	7,300	0	0	0	0
	Medium	105,510	520	11,580	0	4,257
	Low	0	0	0	11,380	0
Geothermal	High	5,000	0	0	0	0
	Medium	112,310	0	11,580	11,380	4,257
	Low	520	0	0	0	0
Construction Materials (stone, sand, gravel)	High	3,400	0	0	0	0
	Medium	114,410	520	11,580	11,380	4,257
	Low	0	0	0	0	0

complicated, more time consuming, and more expensive. The major reason for this is the loss of surface control which might constrain access.

Other Leasables

The designation of the wilderness areas will have no effect on phosphate areas, as the evaluated lands lie outside the wilderness boundaries.

Disposal of lands may negatively impact this resource if the disposal action reserves minerals and splits the surface estate and mineral interests. This could disrupt and delay future mineral development. Also, an additional road closure in Warm Springs Creek could seasonally impact phosphate exploration.

Locatables

Mineral location would be available on 176,093 acres. Twenty-three percent (46,386 acres) are considered to have high potential for locatable minerals. Active mining operations would require either a notice (five acres of disturbance or less per year) or a plan of operations (five acres of disturbance or more per year) under the 3809 Regulations. These obligate the miner to reclaim any disturbed sites.

Designation of the four Wilderness Study Areas to wilderness areas would have a detrimental effect on opportunities for locatable minerals. After December 31, 1983, any designated wilderness areas or wilderness study areas were closed to location of new mining claims. This equals 27,737 acres in this resource area. Wales Creek WSA is the only one of four Wilderness Study Areas that contains unpatented (40) mining claims. Development work, extraction, and patenting would be allowed to continue on valid mining claims located on or before December 31, 1983. Any mining activity in a wilderness area will require an approved plan of operations under the 3802 Regulations. The potential for metallic minerals ranges from low in Hoodoo WSA to medium in Quigg West 202 WSA, Gallagher 202 WSA, and part of Wales Creek WSA to high in the southern portion of Wales Creek WSA. Even though most of the 27,737 acres are moderate and low potential, designation as wilderness would mean the long-term loss of this potential. In the area of high rating, this potential, also, would be lost, subject to valid existing rights of the claimants.

Designation of a 20-acre ACEC in Rattler Gulch, would coincide with a withdrawal of the area from locatable minerals. Because of its size, it should not have a significant impact.

Under this alternative reversing the R&PP and C&MU classifications (500 acres) would increase the opportunity and incentive to explore for locatable minerals. Although, less than one percent (1,460 acres) would remain or be withdrawn from mineral entry, these sites, located mainly along rivers and at cultural sites, are segregated against locatable mineral location. This is an impact to the mineral resources, especially in areas of high potential (less than one-half percent). The effect is a loss of opportunity and incentive to prospect for locatables, as no claims may be located to protect the right to a discovery.

Road closures, existing and potential, impose an impact on mining claimants as they may be required to file a plan of operations under the 3809 Regulations, rather than a notice. This could be significant in areas of high potential, as it would be more time consuming and costly to fulfill the plan of operations requirements.

Also, disposal of certain tracts of public lands, which may split the surface and mineral estate, can create an adverse impact to mineral access or development. While this does not affect the availability of the land for mineral exploration and development, it can make exploration more complicated, time consuming, and expensive.

Salables

Generally all lands not included in withdrawals, classifications, valid unpatented mining claims, riparian protection areas, and wilderness areas are available for the disposal of salable mineral materials. Since the classifications (R&PP and C&MU) are to be dropped under this alternative, 500 additional acres would be opened for the disposal of salable minerals, creating a positive impact. In this alternative, permits would not be issued for the removal of mineral materials in the wilderness area. This could be an adverse impact as all four wilderness areas contain moderate potential for these materials but demand is low. Designation of the 20-acre ACEC would preclude salable disposal, although this would probably be of no consequence as it is so small. Also, through this alternative, if tracts of federal surface are disposed of by a land exchange or sale, problems of split estate ownership can be created. While these problems do not affect the availability of the land for mineral development, it can make exploration more complicated, more time consuming, and more expensive.

Conclusion

This alternative, mainly because of the wilderness designations, is restrictive to energy and mineral development. Essentially in the long term, the four Wilderness Study Areas (19 percent of the public lands) would be closed to exploration and development of locatable and leasable minerals, eliminating the possibility to develop the mineral resource, except where there are valid existing claims and leases. However the majority of these lands have low to moderate potential. Designation of a 20-acre ACEC would withdraw it from mineral entry, although this would not prove to be significant.

Any additional closures of existing roads would restrict certain mineral exploration and development activities. This would be true of both locatable and leasable minerals, as more restrictions would be added in the form of special seasonal stipulations, and a plan of operations would be required under the 3809 Regulations. This could be significant in areas of high potential only and as a whole would be minor.

The disposal of lands with split surface and mineral estate could create an adverse impact to minerals. Although, the exchange or sale may not affect the availability of land for exploration and development, it can make it more time consuming, more complicated, and more expensive. Most land adjustments will occur in areas of low potential.

A favorable impact would occur by dropping the 500 acres of BLM classifications (R&PP and C&MU), which would increase the area open to mineral exploration regulated by the 3809 Regulations.

Creating an ACEC, to protect a unique geologic area, would have positive impacts for educational use while having minimal adverse impacts to other energy and mineral resources.

Impacts On Lands

Land Ownership

Impacts on land ownership program are the same as Alternative B.

Access

Impacts on access to public lands are the same as Alternative B.

Withdrawals and Classifications

Impacts on withdrawals and classifications are the same as Alternative A.

Major Utility Corridors

Under Alternative C, 19 percent of the resource area would be unavailable for utility corridors, primarily to protect wilderness designations and ACECs. Another 8 percent would be identified for avoidance. The remaining 73 percent would be available for further analysis.

Conclusion

Impacts to the lands program would be the same as under Alternative B. In addition possible utility corridor routes would be limited to 73 percent of the public land. The wilderness designations and avoidance areas are in areas that could pose significant obstacles for efficient utility siting.

Impacts on Recreation Resources

Impacts to recreation would be similar to Alternative A, except that recreation sites and opportunities would receive increased protection. Less acreage would be impacted by timber harvesting and roading and more land would be placed in protective classifications such as riparian zones, wilderness, and special management areas. Benefits would accrue to roadless backcountry and dispersed recreation opportunities, particularly high quality backcountry hunting. Cumulative impacts would not be as great as Alternative A because less acreage would be harvested and roaded over the 20-year life of the plan.

Impacts from livestock grazing would be fewer than described under Alternative A.

The impacts of oil and gas leasing are similar to Alternative A, except that 29,000 additional acres would have seasonal restrictions, 17,000 acres less would be subjected to stipulations prohibiting surface occupancy, and 13,900 acres more would not be leased. The impacts of mineral exploration and development are similar to Alternative A, except that areas recommended for wilderness would not be available for mineral development and exploration other than on existing claims.

The impacts of motorized vehicle use are similar to Alternative A, except that 1,600 acres less would be available for motorized recreation use.

In addition to restrictions described under Alternative A, the 27,737 acres recommended for wilderness would be excluded from utility and transportation corridor development. The impacts of land ownership adjustment are the same as Alternative B.

Under Alternative C, 27,737 acres would be recommended for wilderness designation and another 2,400 acres would have special management status. Unroaded backcountry recreation values, along with other dispersed recreation uses, would be maximized. High quality backcountry hunting opportunities in particular would benefit.

Conclusion

All recreation activities, except motorized use and road hunting, would benefit from Alternative C. Benefits would especially accrue to unroaded backcountry and dispersed recreation activities, particularly roadless backcountry hunting which would be maximized under this alternative. Also cumulative impacts from timber management activities and road building would not be as great.

Impacts on Visual Resource Management

Visual impacts of forest management would be similar to those described under Alternative A. Less volume would be harvested under Alternative C than Alternative A and more acres would be allocated to visually sensitive classifications.

Generally, Alternative C would create fewer impacts due to livestock grazing than Alternative A because less land would be available to grazing and target forage allocations are less. Also no springs or pipelines would be developed. Miles of fencing and number of cattleguards would increase substantially to protect nongrazing lands resulting in increased localized visual impacts.

Impacts of oil and gas leasing would be the same as Alternative A. Under Alternative C, an additional 27,757 acres would be withdrawn from mineral entry thereby lessening potential visual impacts. These withdrawals would occur in seldom seen, Class IV areas so benefits derived from these withdrawals would be limited.

Impacts of motorized vehicle use would be similar to Alternative A.

Benefits would accrue to visual resources in that 27,737 acres in the wilderness study areas would not be available for utility and transportation corridor developments. These lands would remain in VRM Class I. Additional lands in riparian areas, recreation and cultural sites, and visual corridors would be avoided under Alternative C. Impacts of land ownership adjustment would be the same as under Alternative B.

Benefits would accrue to visual resources because 27,737 acres are recommended for wilderness designation. These lands would remain in VRM Class I.

Conclusions

Alternative C would best retain visual quality in the resource area. As compared to Alternative A benefits would accrue from less timber harvesting and road construction, less grazing, more land withdrawn from mineral entry and utility corridors, and more lands recommended for protective classification such as wilderness designation.

Impacts on Cultural Resources

Impacts on cultural resources are the same as listed for Alternative A.

Impacts on Wilderness Resources

Wilderness designation of all four areas (27,737 acres) would best insure the protection of wilderness values. Although existing valid mineral claims could be developed under the terms of the 1964 Wilderness Act, oil and gas exploration activities on existing claims would be strictly regulated to avoid impact on the wilderness character of the land. No new leases or claims are permitted after December 31, 1983.

The WSAs would not be open to timber management, livestock grazing, or utility ROWs so none of the impacts associated with these activities would occur. All wilderness areas would generally be closed to motorized vehicles except for emergency situations as outlined in the Wilderness Act.

Designation of all four areas (27,737 acres) as wilderness would insure the maintenance of wilderness values by preventing commercial development and by enabling the natural ecological processes to continue unimpeded. Wilderness protection would benefit the scenic and wildlife features of the four areas.

Conclusion

A total of 27,737 acres of wilderness would be added to the National Wilderness Preservation System and as a result, the protection of the four WSAs solitude and natural features would be best ensured over both the short and long term.

Impacts on Forest Resources

Selection of this alternative would result in the greatest impacts to the forestry resource. There would be an 8 percent reduction in the number of acres treated annually and a 6 percent reduction in the annual harvest as compared to Alternative A. The amount of CFL base remains similar to Alternative A, and there would be a 6 percent reduction in the acreage encumbered by roads.

The most significant impacts are the allocation of 126 percent more acres (49,430 acres) to schemes emphasizing management of other resources and thus resulting in a 20 percent reduction in volume harvested from those acres. Forest management would not be practiced on 22 percent of the CFL or an amount similar to that in Alternative A. As compared to the harvest without any restrictions or withdrawals, this represents 29 percent less volume harvested annually. The resulting impacts have been described in Alternative A but the degree of those impacts are greater in this alternative. The impacts and acreages of livestock grazing are similar to those described in Alternative A. There should be little or no cost difference from Alternative A in implementing this alternative.

Conclusion

Selection of this alternative would result in the greatest impacts of any alternative on the forestry resource. Fifty-six percent of the available CFL would be encumbered with a 20 percent volume reduction and 22 percent of the CFL would be unavailable for harvest. The 5,960 mbf annual harvest is a significant reduction from the possible (optimum) level of harvest. Management restrictions require smaller cutting units and adjusted scheduling of sales which hinder optimum timber management.

Impacts on Range Resources

Under this alternative the total AUMs available for livestock grazing would be 3,595 AUMs, which is 65 percent of the AUMs in Alternative A.

In the long term, the AUMs available for livestock grazing is projected to be 4,232 AUMs which is an increase of 637 AUMs (18 percent). AUMs available for livestock grazing in the long term is 61 percent of that in Alternative A.

These reductions are caused mainly by a management goal to protect riparian habitat. Due to the nature of the topography (steep mountains and narrow valleys 200 feet wide and 5 miles long), livestock typically concentrate in the valley bottoms and seldom graze more than 300 to 400 feet up the side slopes. Also these same valleys are the main routes of travel for livestock to the higher summer ranges. Valley bottoms and associated riparian areas become overused and are frequently in poor condition. Based on proper stocking rates recommended by the SCS, there are only two ways to protect the valley bottoms and riparian areas: either fence them out of the allotment or stock the entire allotment to the recommended proper level for vegetative conditions found in the valley bottoms and riparian areas. In this resource area, 95 percent of the poor and fair condition range is found in the valley bottom areas. Fencing is not usually cost effective. Therefore the recommended procedure would be to reduce the stocking levels.

In the short term, there will be a decrease in AUMs available for livestock grazing on 34 of the 84 allotments as compared to Alternative A. No allotments would see an increase in AUM production in the short term. Twenty-three allotments will increase in AUMs available for livestock grazing over the long term.

Over the long term, range construction costs will total approximately $465,000. Table 4-9 lists the improvements and their cost. Maintenance costs on existing projects and the new projects will add another $448,080 over the long term. Table 4-10 summarizes expected new range improvements.

TABLE 4-9

PROJECTED CHANGES IN AUM PRODUCTION FOR ALTERNATIVES C AND D

	AUM	Change	Percent
Short Term	3,595	2,335	39
Long Term	4,232	2,749	39
Alternative A Short Term	5,930	0	0
Alternative A Long Term	6,981	0	0

TABLE 4-10

RANGE IMPROVEMENTS AND COST DATA FOR ALTERNATIVES C AND D

Improvement/ Treatment	Unit	Quantity	Cost*
Weed Control	Acres	0	0
Fence	Miles	82	410,000
Cattleguard	Each	22	55,000
Spring	Each	0	0
Pipeline	Miles	0	0

*Cost data over 20-year period includes materials and labor

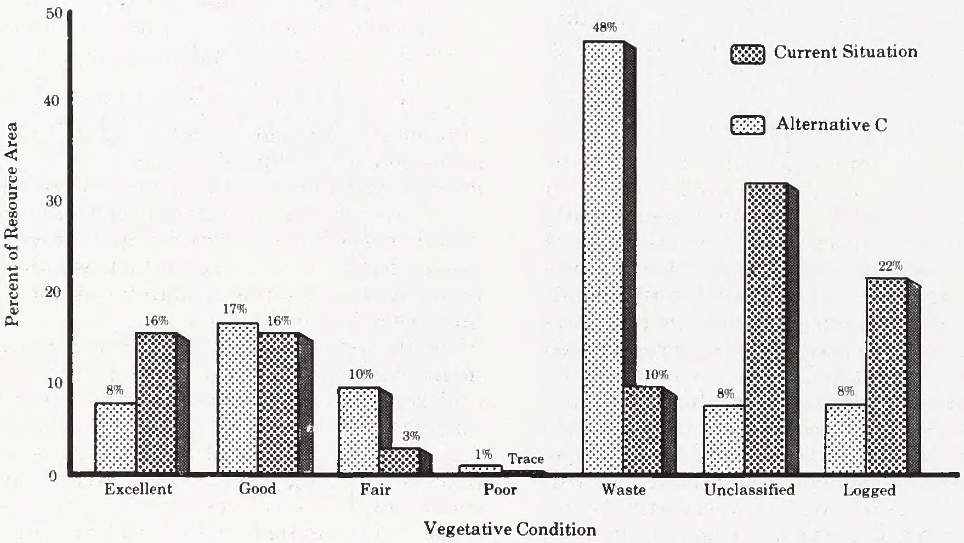
Vegetative conditions are expected to improve significantly on the 28 allotments proposed for AMPs and remain in the same vegetative condition class or nearly so on the remaining 56 allotments. Figure 4-3 illustrates the projected changes in vegetative condition over the long term under this alternative. This illustration is a comparison of only the lands potentially available for grazing use and does not include approximately 38,000 acres excluded from grazing under this alternative.

There would be no weed control by chemical methods under this alternative. The spread of noxious weeds in drainages and along roads would be expected to increase, reducing forage production by 67 percent and doubling soil erosion when knapweed invades rangeland (French, Lacey 1983).

Figure 4-3

Predicted Changes In Vegetative

Condition Under Alternative C/D



Land adjustments will have minimal negative impact on the range resource.

Conclusion

The major impact of this alternative would be the significant reduction in the AUMs available for livestock consumption in both the short and long term as compared to Alternative A. A reduction of 2,335 AUMs in the short term of this alternative as compared to Alternative A and a long-term reduction of 2,749 AUMs compared with Alternative A.

Modest improvements in vegetative condition are expected in the long term. About 52 percent of lands available for livestock grazing should be in good and excellent condition as compared to 33 percent presently.

No chemical weed control work will be initiated on public land. Range improvements would be limited to building control fences and cattleguards at a total estimated construction and maintenance cost over the long term of $913,080 or an average annual cost of $45,654.

Except for phasing in most of the AUM reductions over a five-year period, little can be done to mitigate the adverse impacts of these reductions on the livestock operators.

Impacts on Wildlife and Fisheries

This alternative would propose managing 102,237 acres (70 percent of the total land base) with stated wildlife habitat goals in the MA guidelines. The remaining acreage (43,423 acres) would be managed with wildlife considerations through application of Standard Operating Procedures and mitigative or restrictive recommendations.

Mountain Coniferous Habitat

The resource area contains about 130,000 acres (89 percent) of mountain coniferous habitat. Timber management on 87,930 acres of CFL occurs primarily on big game summer range at the rate of 1,120 acres treated and 9.0 miles of new road constructed annually. This is a decrease compared to Alternative A. The short-term impacts of this action will disturb most species and displace some species. Potential impacts include reduced fall security cover for big game; loss of effective habitat due to increased vehicle access; loss of thermal and security cover immediately adjacent to winter range foraging areas; reduced big game use of clearcuts and moist sites by alteration of adjacent timber stands; loss of specific vegetative successional stages (mature, old-growth) necessary to meet many species requirements; and disturbance of effective seasonal habitat during high energy demand periods such as fawning, calving, nesting, brood rearing, and winter. Short-term mitigative restrictions and actions will reduce the magnitude of site-specific impacts in most cases. There will be few or no immediate beneficial impacts.

The long-term adverse impacts would potentially be small considering that 32,000 acres (36 percent) of CFL does not have stated management area wildlife goals, only protective stipulations for elk habitat components and possible road management restrictions. This is a decrease compared to Alternative A. Over the life of the plan, harvest and new road construction will amount to about 22,400 acres treated and 180 miles of new road. This is a decrease compared to Alternative A. Habitat alteration by timber activities such as clearcut, seed tree, etc. is expected to create about 7,616 acres (34 percent) of open forage. About 14,784 acres (66 percent) timbered forage will be created through shelterwood harvest methods and commercial thinning. This is a decrease compared to Alternative A. The consequences of this alteration in vegetative structure and composition will result in more acres in early successional stages, fewer acres in late successional stages, and a trend toward even-aged management. The long-term response of wildlife to changes in vegetation and access will cause shifts in species and population to match requirements for suitable habitat. This is a decrease compared to Alternative A.

The balance of the CFL in the mountain coniferous habitat, approximately 55,920 acres (64 percent) occurs at both upper and lower elevations constituting either big game summer or winter range, or special management areas where timber activities are guided by wildlife goals. Timber management actions and consequential adverse impacts to wildlife habitat will be moderate in the short term due to mitigative restrictions. Habitat quality would be maintained or improved over the long term for certain species or species groups.

Timber management outside of CFL for the remainder of the resource area (about 42,080 acres) in this habitat would be limited to rights-of-way, sanitation, or salvage timber activities that are necessary to meet wildlife or other resource goals. This is the same compared to Alternative A.

Range management under this alternative would occur on 107,530 acres, with the mountain coniferous habitat contributing substantially to the total. Intensive livestock management is prescribed for about 85,026 acres, about 78 percent of the total 107,530 acres, and would have stated wildlife objectives. This is an increase compared to Alternative A. The balance of the acreage (22,504 acres) would not have stated wildlife objectives for grazing management. This is a decrease compared to Alternative A.

The impacts on wildlife habitat by livestock grazing in this habitat ranges from direct forage competition with big game species to nesting, brood rearing, and foraging conflicts with small game and nongame species. Additionally, there is evidence of social intolerance by some big game species for livestock. Within the forest habitat types, various successional stages occur as a result of timber management practices which create transitory range and access roads into formerly unlogged areas. The majority of the existing allotments include forested areas not currently accessible to livestock grazing; however, these areas provide suitable habitat for many wildlife species. Vegetative changes in these areas will produce additional accessible livestock forage that will ultimately cause wildlife habitat use conflicts within allotments. In many cases allotment boundaries and pastures are unfenced, but depend on natural barriers such as uncut timber or terrain to control livestock movement. As these areas are developed through logging and road building, livestock move into previously ungrazed areas (the cutting units themselves or parks and riparian zones). Mitigative measures such as fencing, leaving vegetative barriers, or blocking roads and trails to livestock movement may be successful in reducing livestock and wildlife conflicts in the short term. In the long term, the conflict will increase as more acres of previously uncut forest are harvested and the areas grazed. The dispersement of livestock over a greater area of one or more allotments increases the chances of social intolerance by elk. This is a decrease compared to Alternative A.

Through the implementation of 28 AMPs, 5,929 acres (81 percent) of unsatisfactory big game winter range forage is expected to improve to satisfactory condition. This is an increase compared to Alternative A. However, 1,430 acres of unsatisfactory winter range forage outside of AMP areas will remain in unsatisfactory condition. This is a decrease compared to Alternative A. Present satisfactory winter range forage (23,592 acres) on all allotments is expected to continue in satisfactory condition. This is the same compared to Alternative A. The exclusion of grazing from 38,130 acres will enhance wildlife habitat, primarily in elk summer and fall range.

The impacts of the energy and mineral program are the same as Alternative A.

Mountain Grassland Habitat

The impacts of the forest management program are the same as Alternative A.

The majority of acres in the mountain grassland habitat will be affected by range management practices and occur on both summer and winter big game ranges. Those allotments under AMPs either contain or will have stated wildlife goals achieved through livestock distribution and time of use. In the short term, substantial improvement of unsatisfactory grassland winter ranges is expected to follow full implementation of AMPs. In the long term, all unsatisfactory winter range under AMPs would be raised to satisfactory forage condition. Those acres of grassland in allotments outside of AMP areas are expected to remain in the same forage condition for the short and long term. There are corresponding increases and decreases of unsatisfactory winter range forage compared to Alternative A. (See acreage figures presented under the range management discussion for mountain coniferous habitat in this alternative.)

Mineral exploration and development impacts in the mountain grassland habitat are similar to those discussed under mountain coniferous habitat.

Riparian and Wetland Habitat

The resource area contains about 6,100 acres (4 percent) of riparian and wetland habitat. Timber management activities under this alternative would essentially be excluded on 1,000 acres, be restricted by wildlife goals for old-growth timber corridors and nongame habitat diversity on 3,300 acres, and be guided by practices to achieve water quality standards in other areas of forest development. A substantial number of acres occur in special management areas which are potentially unavailable for timber management. Short-term impacts are partially mitigated through management area guidelines and SOP. Long-term impacts from site disturbance will be negligible with the exception of old-growth loss. This is a decrease compared to Alternative A.

Range management affects about 80 percent of riparian and wetland habitat. Through full implementation of intensive grazing management, 3,603 acres of unsatisfactory riparian is expected to improve to satisfactory condition. This amounts to 86 percent improvement. About 601 acres outside of AMP allotments would remain in unsatisfactory condition. Short-term impacts would show gradual improvement in the riparian condition attributed to grazing. Over the long term, AMP acres would be in satisfactory condition. Unsatisfactory acres outside of AMPs would continue as unsatisfactory riparian. This is a decrease compared to Alternative A. Satisfactory riparian (637 acres) in all existing allotments would continue in satisfactory condition for both the short and long term. This is the same compared to Alternative A.

Impacts of mineral exploration and development in the riparian areas are the same compared to Alternative A.

Aquatic Habitat

The resource area has about 67 miles of streams and rivers producing fish. Impacts of timber management activities associated with this habitat are the same as Alternative A.

The range management program affects 48 percent (29 miles) of aquatic habitat under this alternative. Currently there are 15 miles (52 percent) in optimum aquatic condition, 6 miles (21 percent) in suboptimum condition, and 8 miles (27 percent) unsurveyed in all allotments. Through AMPs, 6 miles (100 percent) of suboptimum habitat would be improved through increased bank stability and cover. Short-term response would be an increase in fish production, with long-term results of stabilizing more optimum habitat. This is an increase compared to Alternative A.

Within aquatic habitat, mineral exploration and development impacts are the same as Alternative A.

Threatened and Endangered Species Habitat

Impacts on threatened and endangered species for this alternative are the same as discussed under Alternative B.

Conclusion

Under Alternative C, there would be few or no short-term benefits from timber management, but low potential long-term impacts on big game summer ranges and nongame habitat. This is a decrease compared to Alternative A. At lower elevations timber management impacts on big game winter range would be low in the short term and tend toward improvement in the long term. This is an increase compared to Alternative A. Range management impacts on habitat at upper and lower elevations are mostly mitigated in both the long and short term through stated AMP wildlife goals on 78 percent of the allotment area. This is an increase compared to Alternative A. Conflicts between livestock and wildlife would continue on 22 percent of the grazing allotments in both the short and long term, particularly in areas of newly created transitory range. This is a decrease compared to Alternative A. Of the total unsatisfactory big game winter range forage, 5,929 acres (81 percent) would be expected to improve to satisfactory condition. The development of mining claims will cause significant impacts on wildlife habitat in both the short and long term. However, relatively few acres are currently disturbed by mining development. This is the same compared to Alternative A. Other energy and mineral leases have stipulations to mitigate impacts on wildlife habitat. At the current activity level, short and long-term impacts are negligible for phosphate, oil, and gas activities. This is the same compared to Alternative A.

Timber management will have some short-term impacts on the mountain grassland habitat but few long-term impacts. This is a decrease compared to Alternative A. Intensive livestock management will show long-term forage improvement on AMP acres. This is an increase compared to Alternative A. There will be little or no improvement outside of AMP allotments or about 19 percent of total unsatisfactory big game winter range forage. This is a decrease compared to Alternative A. Mineral impacts will be about the same as described for mountain coniferous. This is the same compared to Alternative A.

Riparian and wetland habitats will experience few unmitigated short-term impacts, and there will be negligible long-term impacts with the exception of some old-growth loss in timber management areas. This is a decrease compared to Alternative A. Through AMPs, 3,603 acres (86 percent) of unsatisfactory riparian is expected to improve to satisfactory condition in the long term. This is an increase compared to Alternative A. The remainder of unsatisfactory and satisfactory riparian will continue in current condition. This is a decrease in unsatisfactory riparian attributed to grazing compared to Alternative A. Mineral impacts on wildlife habitat are most significant where there is mining claim development in both the short and long term compared to other energy and mineral development. This is the same as compared to Alternative A. However, at the completion of mining activities rehabilitation of the site is required. Other energy and mineral development is not permitted. This is the same as Alternative A.

Impacts to aquatic habitat from timber management actions are primarily associated with road location and stream crossing design. Short-term impacts will occur, but long-term impacts will be negligible with proper location and design. This is the same compared to Alternative A. Livestock grazing through intensive management allotments is expected to improve 100 percent of the current suboptimum habitat to optimum condition over the long term. This is an increase compared to Alternative A. Impacts of mineral activities are similar to those discussed under the riparian habitat.

Under this alternative, 18,788 acres could be considered for land base adjustment through sale or exchange. An estimated 235 acres may be sold. This could cause minor adverse wildlife habitat impacts if the lands were converted to other uses not compatible with wildlife. The exchange program offers the potential to bring private or state lands having equal or greater wildlife values into public ownership. Wildlife concerns including threatened or endangered species would receive consideration at the beginning of any lands transaction discussions. Wildlife habitat values will be evaluated in the environmental assessment that accompanies an exchange proposal. This is an increase compared to Alternative A.

There will be no significant impacts on threatened or endangered species habitat.

Impacts of Social and Economic Conditions

The annual timber harvest under this alternative would be 5,960 mbf per year. This production would account for 53 jobs in the area. The income from these jobs and this harvest level would remain in the local area. At an average 1981 income of $19,984 per job, employment income from these jobs equals $1,059,152 in direct income to the regional economy. At an average stumpage value of $46.80 per thousand board feet, the timber harvested is valued at $278,928 per year. Indirect income to businesses in the area from the labor sector would amount to an additional $836,784. Therefore, this alternative would lead to three fewer jobs in the timber industry over the present situation. The health of the housing market would have a much greater short-term effect on the employment levels in the timber industry than availability of public timber for harvest.

Under this alternative 32 of 84 grazing allotments would receive reductions in their grazing units. Average reductions by size class (see Appendix R) range from 3.9 percent for Class 1 to 26.3 percent for Class 4. The average change in AUMs would create an income reduction from just over 1 percent to under 1 percent. Individual reductions could be higher, creating a greater than 1 percent reduction in ranch income. Table 4-11 lists the number of ranches affected in each size class. These reductions on an individual basis may be significant. About 12 ranchers could see significant adverse effects to ranch income under this alternative. Another effect of changes in grazing permits could be a change in a ranch's value and therefore a change in the amounts a rancher can borrow. This could be significant for ranchers who have a high dependency upon BLM grazing. In general, most ranchers will not be affected by these changes. This alternative would have the greatest likelihood of having significant adverse income and permit value impacts on some individual ranchers. Those who would be affected have a high dependency on BLM grazing and a large reduction in grazing use.

TABLE 4-11

NUMBER OF RANCHES IN EACH SIZE CLASS AFFECTED BY THE GRAZING PROGRAM IN ALTERNATIVE C

Size Class	Ranches Affected in the Short Term	Ranches Affected in the Long Term
1	7	7
2	8	7
3	11	12
4	15	15

This alternative would increase the area withdrawn from mineral entry and increase the area where oil and gas leases require special stipulations or prohibit surface occupancy. The number of acres withdrawn from mineral entry increases from 1,460 in Alternative A to 29,217 under this alternative. Some of this acreage would be along streams which could reduce opportunities for the development of additional placer mines in these areas.

The increase of acreage where leases require special stipulations or prohibit surface occupancy would not prohibit exploration and development but would tend to increase costs. In addition, seasonal restrictions could lead to problems in scheduling exploration and development activities. This could lengthen the time of exploration and development should deposits be discovered.

While the above restrictions will have an effect on oil and gas and mineral development in specific areas, they are not major components in determining the extent of development. The price of these commodities and the relative availability and grade of local deposits will have a far greater effect on the development of these resources in the area.

This alternative would provide the greatest opportunity for roadless recreation. More acres would be closed to motorized vehicles which would reduce the opportunity for this type of use.

The acres where management emphasizes wildlife habitat would also increase. This would improve or maintain the habitat and could lead to an increase in numbers for some species in some areas. Should numbers increase, the number of permits could increase or the hunter success on a species could increase. If more hunters are attracted to the area, more money will flow into the local economy from hunting and fishing.

This alternative would recommend for wilderness all areas which are currently wilderness study areas. This would provide an increased opportunity for primitive recreation in the area. The designation of the areas would likely increase visitorship to the area. The stock of wilderness near Missoula is presently large, but these study areas are generally closer to the Missoula area. Much of the reduced timber harvest under this alternative stems from designation of these areas as wilderness with most of the rest due to the wildlife program.

Conclusion

This alternative could cause a reduction of three forest related jobs and a small reduction in ranch income. Some gains could be seen in jobs and income related to recreation and wildlife.

ALTERNATIVE D

Impacts on Air Quality

Impacts on air quality will be of the same kind but slightly greater than for Alternative A. Annually, timber production will be 6,780 mbf from 1,313 acres and 10.2 miles of road construction for Alternative D as compared to 6,370 mbf from 1,216 acres and 9.6 miles of new road for Alternative A. Land area available for oil and gas leasing is 513 acres less than for Alternative A while land withdrawn from mineral entry is 14,370 acres greater. As in Alternative A, intermittent impacts caused by air pollution associated with these activities are not significant.

Conclusion

Impacts on air quality may be slightly greater than for Alternative A and will be of short duration and substantially insignificant.

Impacts on Soil and Water Resources

Land area available for oil and gas leasing is 14,350 acres less than in Alternative A. Area withdrawn from mineral entry is 15,830 acres as compared to 1,460 acres for Alternative A. Impacts resulting from these activities are similar to those occurring in Alternative A except that there is a slightly reduced opportunity for impacts from oil and gas leasing and reduced chance for impacts related to minerals entry. Impacts are not expected to differ significantly from Alternative A.

Alternative D has 107,530 acres available for grazing with 3,595 AUM's. There will be 85,026 acres under AMP control as compared to 35,663 acres for Alternative A. This alternative will have 23,899 acres in excellent vegetative condition, 19,804 acres in good condition, 4,923 acres in fair condition, and 21 acres in poor condition. Alternative A will have 7,739 acres in fair condition and 1,223 acres in poor vegetative condition. Improvements in vegetative condition will be significant. Since watershed condition is directly comparable to vegetative condition, watershed condition will also improve significantly.

Forest management activities will produce an 8 percent increase in timber compared to Alternative A. Impacts are not expected to be significant as long as appropriate timber sale and road layout procedures are used.

AMPs, Standard Operating Procedures, Management Directives, and Regulations will be applied in this alternative, as in Alternative A, to maintain or enhance site productivity, water quality, and stream channel stability.

Conclusion

Additional AMPs in conjunction with a 40 percent reduction in total AUMs will cause a significant improvement in vegetative condition and therefore also watershed condition. AMP implementation will reduce soil compaction, streambank sloughing, and increase ground cover thereby reducing soil erosion, improve vegetative productivity, and have a beneficial effect upon water quality.

Increased land acres available for oil and gas leasing and the small increase in timber management activities may increase the potential for increases in sediment production related to road construction but impacts are not expected to be significant.

Impacts on Energy and Minerals

Oil and Gas

Under this alternative surface occupancy on oil and gas leases is allowed on 190,636 acres. Occupancy would be permitted with standard stipulations on 112,086 acres (55 percent), while 38 percent (78,550 acres) would have seasonal restrictions. Leases on 600 acres would prohibit surface occupancy. Seven percent (14,350 acres) would be closed to leasing in the wilderness areas.

Areas with special stipulations total 79,150 acres and include both seasonal restrictions and stipulations prohibiting surface occupancy. Seasonal restrictions are located in existing and potential road closure areas. If additional closures of existing roads are imposed, exploration and development activities could be restricted, although even in areas of moderate potential this should not prove to be a significant impact. Stipulations prohibiting surface occupancy are applied primarily to an ACEC, cultural and historical sites, and special management areas scattered throughout the resource area. Although directional drilling is a negative impact because of cost feasibility, it should not prove to be significant as these are scattered tracts of about 40 acres and have moderate to low potential.

Under this alternative, portions of all four WSAs (14,350 acres) would be recommended as suitable for wilderness designation. Even though two of the WSAs are rated as being moderate potential and two are rated as having low potential (see Table 4-8) this could be a significant negative impact, as it eliminates any possibility of developing the mineral resource that may be there.

If tracts of federal surface are disposed of through land exchange or sale (18,788 acres may be considered for possible adjustment), potential problems with split estate ownership can be created. While these problems do not affect the availability of land for energy exploration, the loss of surface control may make exploration more complicated, more time consuming, and more expensive.

Other Leasables

The designation of the partial wilderness areas will have no effect on phosphate areas since the evaluated lands lie outside the wilderness boundaries.

Disposal of approximately 1,200 acres, where the United States reserves minerals and splits the surface estate and mineral interests, could disrupt and delay future mineral development. Also, an additional road closure in Warm Springs Creek could temporarily impact phosphate exploration because of seasonal disruption.

Locatables

Mineral location would be available on 189,480 acres under this alternative. Twenty-three percent (46,386 acres) are considered to have high potential for locatable minerals. Active mining operations would require either a notice (five acres of disturbance or less per year) or a plan of operations (five acres of disturbance or more per year) under the 3809 Regulations. These obligate the miner to reclaim any disturbed sites.

Designation of a portion of the four wilderness study areas to wilderness areas would have a detrimental effect on opportunities for locatable minerals. Any designated wilderness areas, after December 31, 1983, were closed to mineral entry. This equals 14,350 acres under this alternative. Wales Creek WSA is the only one of four wilderness study areas that contains unpatented mining claims (40) but the area containing the claims has been eliminated from wilderness review under this alternative. Development work, extraction, and patenting would be allowed to continue on valid claims located on or before December 31, 1983. Any mining activity in a wilderness area will require an approved plan of operations under the 3802 Regulations. The potential for locatables ranges from low in Hoodoo WSA to medium in Quigg 202 WSA, Gallagher 202 WSA, and part of Wales Creek WSA. Even though all of the 14,350 acres are moderate to low in potential, designation as wilderness would mean the long-term loss of this potential.

Designation of a 20-acre ACEC in Rattler Gulch would coincide with a withdrawal of the area from locatable minerals. Because of its size, it should not have a significant impact.

Under this alternative, revoking the R&PP and C&MU classifications (500 acres) would increase the opportunity and incentive to explore for locatable minerals. Although less than one percent (1,460 acres) would remain or be withdrawn from mineral entry, these sites, located mainly along rivers and at cultural sites, are segregated against locatable mineral location. This is a localized impact to the mineral resources especially in areas of high potential (less than one-half percent). The effect is a loss of opportunity and incentive to prospect for locatables, as no claims may be located to protect the right to a discovery.

Road closures, existing and potential, impose an impact on mining claimants as they may be required to file a plan of operations under the 3809 Regulations, rather than a notice. This could be significant in areas of high potential, as it would be more time consuming and costly to fulfill the plan of operations requirements. However the majority of the road closures avoid areas of high mineral potential.

Also, disposal of certain tracts of public lands, which may split the surface and mineral estate, can create an adverse impact to mineral access or development. While this does not affect the availability of the land for mineral exploration and development, it can make exploration more complicated, time consuming, and expensive.

Salables

Generally, all lands not included in withdrawals, classifications, valid unpatented mining claims, riparian protection areas, and wilderness areas are available for the disposal of salable mineral materials. Since, the classifications (R&PP and C&MU) are to be dropped under this alternative, 500 additional acres would be opened for the disposal of salable minerals, creating a positive impact. In this alternative, permits would not be issued for the removal of mineral materials in the wilderness areas. This is offset by low or no demand. Designation of the 20-acre ACEC would preclude salable disposal, although this would probably be of no consequence as it is so small.

If tracts of federal surface are disposed of by a land exchange or sale, problems of split estate ownership can be created. While these problems do not affect the availability of the land for mineral development, it can make exploration more complicated, time consuming, and expensive.

Conclusion

This alternative, mainly because of the partial wilderness designations, is fairly restrictive to energy and mineral development. Essentially, in the long term, the portions of the wilderness study areas that are designated (7 percent of mineral estate) would be closed to exploration and development of locatable and leasable minerals. This would eliminate the possibility to develop the mineral resource.

Designation of a 20-acre ACEC would withdraw it from mineral entry, although this would not prove to be significant.

Any additional road closures would restrict certain mineral exploration and development activities. This would be true of both locatable and leasable minerals, as more restrictions would be added in the form of special seasonal stipulations and a plan of operations that would be required by the 3809 Regulations. This could be significant in areas of high potential only and as a whole would be minor.

The disposal of lands with split surface and mineral estate, could create an adverse impact to minerals. Although, the exchange or sale may not affect the availability of land for exploration and development, it can make it more time consuming, more complicated, and more expensive.

A favorable impact would be dropping the 500 acres of BLM classifications (R&PP and C&MU), which would increase the area open to mineral exploration regulated by the 3809 Regulations.

Creating an ACEC, to protect a unique geologic area, would have positive impacts for educational use while leaving little or no adverse impacts to other energy and mineral resources.

Impacts On Lands

Land Ownership

Impacts on the land ownership program are the same as Alternative B.

Access

Impacts on access are the same as Alternative B.

Withdrawals and Classifications

Impacts on withdrawals and classifications are the same as Alternative A.

Major Utility Corridors

Under this alternative, wilderness designation would be reduced and 9 percent of the resource area would be unavailable for utility corridors. Eight percent would be identified for avoidance, and 82 percent would be available for further analysis.

Conclusion

Impacts to the lands program would be the same as under Alternative B, with 82 percent of the resource area available for utility corridor analysis.

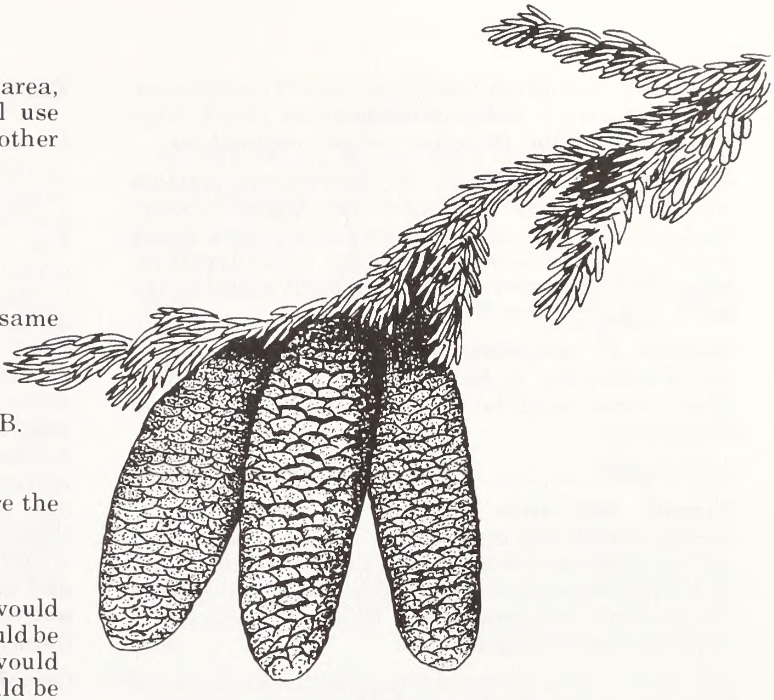
Impacts on Recreation Resources

Impacts on recreation would be similar to those described under Alternatives A and C, except that less land would be allocated to wilderness and special management areas. Under Alternative D, 15,300 acres would be reallocated to forest management with special considerations for wildlife. Significant impacts would be the loss of 13,387 acres of wilderness and roadless backcountry recreation opportunities. The greatest loss would be to those activities common to unroaded backcountry areas such as backpacking, camping, hiking, horseback riding, backcountry hunting, and associated activities.

The impacts of grazing management are the same as Alternative C.

The impacts of oil and gas leasing are similar to Alternative A, except that 13,387 acres in WSAs would be available for leasing. Impacts of mineral exploration and development would be similar to Alternatives A and C, except that only 15,830 acres would be withdrawn from mineral entry. These lands include historical and cultural sites, and lands recommended for wilderness and special designations (ACEC).

The impacts of motorized vehicle use are similar to Alternative A, except that an additional 13,600 acres would be available for motorized recreation use subject to seasonal closures and other restrictions.



The impacts of utilities and transportation corridors are similar to Alternatives A and C, except that 13,387 acres of WSA lands would be available for corridor consideration. The impacts of land ownership adjustment are the same as Alternative B.

The impacts of wilderness and special management areas are similar to Alternative C, except that only 14,350 acres would be recommended for wilderness and 440 acres would be recommended for special management.

Conclusion

Similar to Alternative C, except that 13,387`acres of WSA lands would be developed for timber management and other consumptive uses. Under this alternative about half of the WSA lands could be impacted by other resource development activities. Consequently, the loss of unroaded backcountry recreation opportunities would be moderately significant but accompanied by an increase in motorized vehicle recreation.

Impacts on Visual Resource Management

Impacts of timber management would be similar to those described under Alternatives A and C except that less land would be allocated to wilderness and special management. Changes in the visual landscape and VRM classes from Class I to Class IV would occur on 13,387 acres.

Impacts of grazing management are the same as Alternative C.

Impacts of oil and gas leasing would be similar to Alternative A except that 13,387 acres in wilderness study areas would be available for leasing. Impacts of mineral exploration and development would be similar to Alternatives A and C except that 15,830 acres would be withdrawn from mineral entry.

Impacts of motorized vehicle use would be the same as Alternative A except an additional 13,600 acres would be available for motorized recreational use.

Impacts of utilities and transportation corridors would be the same as Alternatives A and C except that 13,387 acres of wilderness study area lands would be available for corridor consideration. Impacts of land ownership adjustment would be the same as Alternative B.

Impacts of wilderness and special designations would be similar to Alternative C except that only 14,350 acres would be recommended for wilderness designation.

Conclusion

Overall, Alternative D is similar to Alternative C except that 13,387 acres of wilderness study area lands would be developed for timber management and other consumptive activities. This would result in less land being held in a VRM Class I, visual retention classification.

Impacts on Cultural Resources

Impacts on cultural resources are the same as listed for Alternative A.

Impacts on Wilderness Resources

In this alternative, 14,350 acres would be recommended suitable for wilderness designation. With this alternative, the impacts of oil and gas exploration, mineral entry, timber harvest, livestock grazing, utility ROWs, and motorized vehicle use would be the same as Alternative C as far as significance and degree, but would be a factor on 14,350 acres of recommended wilderness and 440 acres of specially managed lands. The remaining 13,387 acres in the former WSA would be released for development and the impacts on the wilderness characteristics of these lands would resemble those described in Alternative B.

Conclusion

A total of 14,350 acres of wilderness would be added to the National Wilderness Preservation System and would be managed to preserve wilderness characteristics. An additional 440 acres would be administratively flagged for special management to protect wildlife, watershed, and dispersed recreation with the result that impacts on wilderness values from developments on these lands would be minimized, although protection would be less secure than with Congressional wilderness designation. The remaining 13,387 acres from the former WSAs would be subject to the whole range of mitigated impacts from developmental activity.

Impacts on Forest Resources

Under this alternative, there would be an 8 percent increase in the number of acres treated annually (1,313 acres) and a 6 percent increase in the annual harvest (6,780 mbf) as compared to Alternative A. The CFL available is 15 percent greater (101,130 acres) than Alternative A and the acreage needed for roads increases by 4 percent (60.6 acres). Although more CFL acres are available for timber management primarily because of a 54 percent reduction (11,330 acres) in the CFL encumbered in set aside acres, there are 183 percent more acres (61,880 acres) with restricted management. As compared to the harvest without any restrictions or withdrawals, this represents 21 percent less volume harvested annually. Overall, there is a similar degree of impacts as those described in Alternative A. For example there would be more acres requiring smaller cutting units and delayed entries but there would be fewer acres unavailable for timber management. The cost of implementation would be greater than Alternative A.

Conclusion

Overall the degree of impacts of this alternative are similar to those in Alternative A. There are fewer acres unavailable for timber management but more acres have restricted management prescriptions. The result is a significant reduction in the possible level of timber harvest but somewhat more than the current situation.

Impacts on Range Resources

Alternative D will be treated the same and have essentially the same impacts on the range resource as Alternative C.

Impacts on Wildlife and Fisheries

This alternative would propose managing 101,490 acres (70 percent) with stated wildlife habitat goals in the MA guidelines. The remaining acreage (44,170) would be managed with wildlife considerations through application of Standard Operating Procedures and mitigative or restrictive recommendations.

Mountain Coniferous Habitat

Impacts of timber management on wildlife habitat are similar to impacts discussed under mountain coniferous in Alternative C.

Impacts of range management on wildlife habitat are the same as the impacts discussed under mountain coniferous in Alternative C.

Mineral exploration and development impacts on wildlife habitat are the same as the impacts discussed under mountain coniferous in Alternative C.

Mountain Grassland Habitat

The resource area contains about 9,500 acres (7 percent) of this habitat. Timber management impacts on wildlife habitat are similar to impacts discussed under mountain grassland in Alternative A.

Range management impacts on wildlife habitat are the same as the impacts discussed under mountain grassland in Alternative C.

Mineral exploration and development impacts on wildlife habitat are the same as the impacts discussed under mountain grassland in Alternative C.

Riparian and Wetland Habitat

The resource area contains about 6,100 acres (4 percent) of this habitat. Timber management impacts on wildlife habitat are similar to impacts discussed under riparian and wetland in Alternative C.

Range management impacts on wildlife habitat here are the same as the impacts discussed under riparian and wetland in Alternative C.

Mineral exploration and development impacts on wildlife habitat here are the same as the impacts discussed under riparian and wetland in Alternative C.

Aquatic Habitat

The resource area has about 67 miles of streams and rivers on public lands producing fish. Timber management impacts on wildlife habitat here are similar to impacts discussed under aquatic in Alternative C.

Range management impacts on wildlife habitat are the same as the impacts discussed under aquatic in Alternative C.

Mineral exploration and development impacts on wildlife habitat are the same as discussed under aquatic in Alternative C.

Conclusion

The summary of wildlife habitat impacts under this alternative are similar or the same as found in the conclusion of Alternative C.

Impacts on Social and Economic Conditions

About 6,780 mbf of timber would be harvested under this alternative per year. This would supply timber to provide 62 jobs. At an average salary of $19,984 in 1981, these jobs would add $1,239,008 to the regional economy. At an average stumpage value of $46.80 per thousand board feet, the timber is valued at $317,304. Indirect income from this harvest would amount to an additional $951,912 from the labor sector to the local economy. Other impacts are similar to those discussed under Alternative A.

Under this alternative 29 of 84 grazing allotments would face short-term reductions in grazing use. This alternative would have substantially the same effect on ranchers as Alternative C. Table 4-12 lists the number of ranches affected in each size class (see Appendix R).

This alternative would have impacts similar to those discussed under Alternative C. The acreage with special stipulations for oil and gas exploration and development would be greater than under Alternative C. However, since exploration has just started in the area as a whole, the impact of these stipulations cannot be quantified. These restrictions would tend to slow exploration and development and increase costs.

TABLE 4-12

NUMBER OF RANCHES IN EACH SIZE CLASS AFFECTED BY THE GRAZING PROGRAM IN ALTERNATIVE D

Size Class	Ranches Affected in the Short Term	Ranches Affected in the Long Term
1	5	5
2	4	6
3	11	12
4	12	14

The area withdrawn from mineral entry would be reduced from 29,217 acres in Alternative C to 15,830 under this alternative. Therefore, the impact on the opportunity to explore and develop mineral resources would be reduced.

The impacts of this alternative on the social and economic aspects of the wildlife program would be the same as Alternative C.

The opportunity for roadless area recreation would be reduced under this alternative while motorized recreation use would increase. The effect on the economy as a whole would, however, be insignificant.

Under this alternative, slightly over half of the wilderness study area acreage would be recommended for wilderness designation. Those areas designated would still provide wilderness recreation as discussed under Alternative C. The addition to the supply of wilderness would be smaller which if demand for use is great enough could cause increased use of those which are designated.

Designation of these areas would have some effect on the amount of timber available for harvest. This, however, would not significantly affect the yearly harvest of timber or the jobs this timber provides.

Conclusion

This alternative would provide a level of timber harvest which would lead to 62 forest related jobs. Other social and economic effects would be similar to those discussed under Alternative C.

ALTERNATIVE E

Impacts on Air Quality

Impacts on air quality will be of the same kind but slightly greater than for Alternative A. Annually, timber production and road construction will be 7,030 mbf from 1,352 acres, and 10.5 miles of road construction for Alternative E. Land area available for oil and gas leasing will be 9,237 acres greater than for Alternative A while land withdrawn from mineral entry is 540 acres greater. As in Alternative A these intermittent impacts caused by air pollution associated with these activities are normally not significant.

Conclusion

Impacts on air quality, which may be slightly greater than for Alternative A, are expected to be of short duration and substantially insignificant.

Impacts on Soil and Water Resources

Land area available for oil and gas leasing is 9,237 acres greater, and area withdrawn from mineral entry is 540 acres greater than for Alternative A. Impacts resulting from these activities are similar to those occurring in Alternative A except that there is a greater opportunity for impacts from oil and gas leasing and a slightly reduced chance for impacts related to minerals entry. Impacts from both sources are not expected to differ significantly from Alternative A.

Alternative E has 111,890 acres available for grazing with 6,245 AUM's. There will be 81,294 acres under AMP's as compared to 35,663 acres for Alternative A. This alternative will have 11,939 acres in excellent vegetative condition, 35,186 acres in good condition, 1,522 acres in fair condition, and 0 acres in poor condition. Alternative A will have 7,739 acres in fair condition and 1,223 acres in poor vegetative condition. Improvement in vegetative condition will be significant. Since watershed condition is directly comparable to vegetative condition, watershed condition would also improve under this alternative.

Forest management activities will produce an 11 percent increase in timber for Alternative E as compared to Alternative A. Impacts are not expected to be significant as long as appropriate timber sale and road layout procedures are used.

Allotment Management Plans, Standard Operating Procedures, Management Directives, and Regulations will be applied in this alternative, as in Alternative A, to maintain or enhance site productivity, water quality, and stream channel·stability.

Conclusion

Increased use of AMPs, although accompanied by a 5 percent increase in total AUMs, will cause a significant improvement in vegetative condition and, therefore, also watershed condition. AMP implementation will result in reduced soil compaction, streambank sloughing, and increased ground cover thereby reducing soil erosion, improve vegetative productivity, and have a beneficial effect upon water quality.

Increased land area available for oil and gas leasing and the moderate increase in timber management activites may increase the potential for sediment production related to road construction. These increases are not expected to be significant.

Impacts on Energy and Minerals

Oil and Gas

This alternative allows surface occupancy of oil and gas leases issued on 96 percent (196,886 acres) of the public lands. Fifty-five percent (112,810 acres) of occupancy would be permitted with standard stipulations, while 41 percent (84,076 acres) of occupancy would be permitted with seasonal restrictions. Leases on 8,180 acres would prohibit surface occupancy. Less than 1 percent (520 acres) of the GRA would be closed to leasing in Quigg West 202 WSA.

Areas with special stipulations total 92,256 acres and include both seasonal restrictions and stipulations prohibiting surface occupancy. Seasonal restrictions are located in existing and potential road closure areas and important big game habitat. If additional road closures are imposed, exploration and development activities could be restricted; although, even in areas of moderate potential, this should not prove to be a significant impact.

Stipulations prohibiting surface occupancy would be applied primarily to an ACEC, cultural and historical sites, and special management areas primarily Wales and Cottonwood Meadows.

Under this alternative, only one area being studied for wilderness, Quigg West 520 acres, would be recommended as suitable for wilderness designation. Any oil and gas reserves that are unleased previous to designation, would not be available, resulting in an undetermined economic loss. Quigg West 202 WSA carries a rating potential of low, but even so, this could be a negative impact as it eliminates any possibility of developing the energy resource that may be there.

If tracts of federal surface are disposed of through land exchange or sale, potential problems with split estate ownership can be created. While these problems do not affect the availability of land for energy exploration, they may make exploration more complicated, more time consuming, and more expensive. The major reason for this is loss of surface control which might constrain access.

Other Leasables

The designation of Quigg West 202 WSA will have no effect on phosphate areas as the evaluated lands lie outside the wilderness boundaries.

Disposal of lands may negatively impact this resource if the disposal action reserves minerals and splits the surface estate and mineral interests. This could disrupt and delay future mineral development. Also, an additional road closure in Warm Springs Creek could seasonally impact phosphate exploration and development.

Locatables

Mineral location would be available on 203,310 acres under this alternative. Twenty-three percent (46,386 acres) are considered to have high potential for locatable minerals. Active mining operations would require either a notice (five acres of disturbance or less per year) or a plan of operations (five acres of disturbance or more per year) under the 3809 Regulations. These obligate the miner to reclaim any disturbed sites.

Wilderness designation of Quigg West 202 WSA would have a detrimental effect on opportunities for locatable minerals. After December 31, 1983, any designated wilderness areas or wilderness study areas were closed to location of new mining claims. This equals 520 acres in the resource area under this alternative. The potential for locatables is medium in this WSA, and designation of Quigg West as wilderness would mean the long-term loss of potential on less than one-half percent of the mineral estate.

Designation of a 20-acre ACEC in Rattler Gulch would coincide with a withdrawal of the area from locatable minerals. Because of its size, the withdrawal should not have a significant impact.

Under this alternative, revoking the R&PP and C&MU classifications (500 acres) would increase the opportunity and incentive to explore for locatable minerals. Although less than 1 percent (2,000 acres) would remain or be withdrawn from mineral entry, these sites, located mainly along rivers and at cultural sites, are segregated against locatable mineral location. This is an impact to the mineral resources, especially in areas of high potential (less than one-half percent). The effect is a loss of opportunity and incentive to prospect for locatables, as no claims may be located to protect the right to a discovery.

Road closures, existing and potential, impose an impact on mining claimants as they may be required to file a plan of operations under the 3809 Regulations, rather than a notice. This could be significant in areas of high potential, as it would be more time consuming and costly to fulfill the plan of operations requirements, but most closures avoid high potential areas.

Also, disposal of certain tracts, which may split the surface and mineral estate, can create an adverse impact to mineral access or development. While this does not affect the availability of the land for mineral exploration and development, it can make exploration more time consuming and expensive.

Salables

Generally all lands not included in withdrawals, classifications, valid unpatented mining claims, riparian protection areas, and wilderness areas are available for the disposal of salable mineral materials. Since the classifications (R&PP and C&MU) are to be dropped under this alternative, 500 additional acres would be opened for the disposal of salable minerals, creating a positive impact. In this alternative permits would not be issued for removal of mineral materials on 520 acres designated as wilderness. Designation of the 20-acre ACEC would preclude salable disposal, although this would probably be of no consequence since it is a small acreage and potential for minerals other than limestone is low.

Also, through this alternative, if tracts of federal surface are disposed of by a land exchange or sale, problems of split estate ownership can be created. While these problems do not affect the availability of the land for mineral development, it can make exploration more complicated, time consuming, and expensive.

Conclusion

This alternative has the potential to be somewhat restrictive to energy and mineral development. Essentially, in the long term, the Quigg West WSA would be closed to exploration and development of locatable and leasable minerals. This would eliminate the possibility to develop the mineral resource on less than one percent of the mineral estate.

Designation of a 20-acre ACEC would withdraw it from mineral entry, although this would not prove to be significant. However, the protection of this site would have positive impacts for educational use.

Any additional road closures could restrict certain mineral exploration and development activities. This would be true of both locatable and leasable minerals. This would be locally significant in areas of high potential only and as a whole would be minor.

The disposal of lands with split surface and mineral estate could create an adverse impact to minerals. Although the exchange or sale may not affect the availability of land for exploration and development, it can make it more time consuming, complicated, and expensive.

A favorable impact would be dropping the 500 acres of BLM classifications (R&PP and C&MU), which would increase the area open to mineral exploration regulated by 3809 Regulations.

Impacts On Lands

Land Ownership

A total of 126,872 acres will be designated in retention zones where BLM intends primarily to retain or enhance the existing public land holdings. Public land in most of these zones amounts to sizeable acreages, and most are in reasonably consolidated holdings or contain values appropriate for public ownership. Individual tracts in retention zones may be exchanged when significant management efficiency or greater public values would be acquired. Under some circumstances, a tract may be sold to serve an important public purpose. Public land acreage within these zones is not expected to decline, but may increase because land acquired in exchanges will be concentrated in these zones.

The remainder of the public lands, 18,788 acres, will be open to consideration on individual merits for retention, exchange, transfer, or sale. In general these lands are smaller tracts, widely scattered, and without legal or physical access. The preferred action for any lands which fit the disposal criteria will be to exchange them for lands within a retention zone. Sale may offer a simpler, quicker method of disposing of isolated tracts with negligible public values, but it decreases the long-term potential for a desirable land ownership pattern by depleting the stock of land available for future exchanges. Exchange will balance the impacts of disposal with those of acquisition and by regulatory requirement should result in a net increase in public values.

Over the next 20 years, approximately 25 percent (4,697 acres) of the open lands will leave public ownership, 95 percent of this by exchange. Several factors enter into this estimate. The required procedures and occasional obstacles involve substantial time and expense. Many of the scattered tracts were left out of patent applications because of difficult topography and lack of agricultural value. Most of these tracts are too isolated and inaccessible for commercial or residential use. Numerous tracts are encumbered by prior rights such as mining claims. Field examination of specific tracts may reveal values, such as threatened or endangered wildlife, which would dictate retention in public ownership.

However, even this moderate land tenure adjustment program will result in an improved ownership pattern, reduced management difficulties, and an overall increase in public values.

Access

Public access is proposed to 21 tracts affecting 9,500 acres. Administrative access is proposed to 62 tracts affecting 8,150 acres. All the additional access proposals coincide with land retention zones; this will expand opportunities for public use and further aid in management of the public lands.

Withdrawals and Classifications

Withdrawals on the resource area have been secured by other federal agencies for powersites, power projects, and administrative sites. These total less than 1,600 acres. They will be reviewed under the current BLM withdrawal review process.

In 1973 over 200,000 acres in the resource area were under classification (de facto withdrawal) by BLM. In 1982 these classifications were reviewed and reduced to 500 acres. Under all alternatives classification would be removed from the remaining 500 acres. This would increase the public land base available for land adjustment or multiple use.

Major Utility Corridors

Only 540 acres would be unavailable for utility corridors, to protect a 520-acre wilderness recommendation and a 20-acre ACEC recommendation. Twelve percent of the resource area would be identified for avoidance, and 88 percent available for further analysis.

Conclusion

This alternative provides for consolidation of public land and acquisition of important resource values through a land adjustment program. An increase in access would provide for greater public use and improved manageability. Eighty-eight percent of the resource area would be available for utility corridor analysis.

Impacts on Recreation Resources

The short-term, long-term, and cumulative impacts to recreation would be similar to Alternative A, except more lands would be allocated to timber management activities and road construction. As indicated under Alternative A, impacts would occur to dispersed recreation activities throughout the resource area. Opportunities for hiking, riding, and high quality backcountry hunting would be reduced while opportunities for motorized vehicle use would increase.

There would be a significant decrease in opportunities for roadless backcountry recreation. Nearly 20,000 acres that would have been special management lands under Alternative A would be available for timber management activities and road construction with emphasis on wildlife habitat management.

Impacts of grazing management would be the same as Alternative B.

Impacts of oil and gas leasing would be similar to Alternative A, except less acreage would be subjected to stipulations prohibiting surface occupancy, more lands would be leased with special stipulations, and less lands would be closed to leasing. Impacts of mineral exploration and development would be similar to Alternative A, except that an additional 540 acres would be withdrawn from mineral entry.

Impacts of motorized vehicle use would be similar to Alternative A, except that approximately 20,000 acres, primarily in the WSAs would be available for motorized vehicle use. Seasonal closures and other restrictions outlined under Alternative A would be applicable.

Impacts of utility and transportation corridors would be similar to Alternative A, except that corridor development would be excluded on 540 acres and would avoid another 17,620 acres. Impacts of the land adjustment program would be the same as for Alternative B.

Under this alternative 520 acres would be recommended for wilderness designation and another 8,140 acres would be special management areas. Benefit would accrue to roadless backcountry recreation opportunities on these lands.

Wilderness type experiences would be forgone on 19,617 acres which would be opened for timber management, road construction, mineral development, and vehicle use.

Conclusion

Short-term, long-term, and cumulative impacts would be similar to those described under Alternative A. Additional impacts would result from higher levels of timber harvesting and road construction. More land would also be available for oil and gas leasing, motorized vehicle use, and utility corridor development. These added developmental impacts would have higher adverse effects on dispersed recreation opportunities, backcountry hunting, and similar activities.

Benefits would accrue to motorized vehicle use in that open roads on an additional 20,000 acres would be available for use.

Conversely, 19,617 acres of WSA lands could be impacted by other resource development, thereby significantly reducing the amount of unroaded backcountry recreation opportunities.

Impacts on Visual Resource Management

Short-term, long-term, and cumulative impacts to visual resources from timber management and road construction would be similar to Alternative A except that more acreage would be allocated to timber harvesting and road construction.

Lands added along main highways would allow greater protection for visual corridors. Lands along the Bear Creek county road were removed from the visual corridor because the viewer's sight is attracted to the disturbed private land and the public land could be developed (harvested) without significant visual impact.

Dropping wilderness study area lands from consideration as wilderness or special management areas would allow a change in visual quality. Rather than retention of visual quality in VRM Class I, the rating would be changed to VRM Class IV and allow developmental activities. These impacts could occur on 19,617 acres in Yourname, Gallagher, and Cottonwood Creek drainages. However, these areas are seldom seen so impacts would not be significant for visual quality.

Visual impacts of livestock management would be similar to those outlined under Alternatives A and B. Impacts from range improvements would affect more acreage than Alternative A but less than Alternative B.

Impacts of oil and gas leasing would not be significant. Less acreage is closed or limited by stipulations prohibiting surface occupancy than is specified under Alternative A. However, much more land (84,100 acres) would be leased with special stipulations thereby mitigating most of the significant adverse impacts on visual resources. Impacts of mineral exploration and development would be the same as Alternative A.

Impacts of motorized vehicle use would be similar to Alternative A except that 20,000 acres of additional land would be available for multiple use management. Motorized vehicle use would be restricted to open roads and trails.

Impacts of utility and transportation corridors would be similar to Alternative A except that corridor development would be precluded on 540 acres and would avoid 17,620 acres. Impacts of land ownership adjustment would be the same as Alternative B.

Impacts of wilderness and special management areas would be similar to Alternative A except that benefits derived from the retention of scenic values would apply to 8,660 acres rather than 28,500 acres.

Conclusions

Short-term, long-term, and cumulative impacts would be similar to Alternative A. Additional impacts would accrue because of higher levels of timber management and grazing management. More lands would also be available for oil and gas leasing, off-road vehicle use, utility corridor development, and land ownership adjustment. Less lands would be set aside for visual retention in wilderness and special management areas. Visual corridors along the Blackfoot River, Clark Fork River, Flint Creek, and Rock Creek have been identified. Additional impacts beyond those described under Alternative A would not be significant.

Impacts on Cultural Resources

Implementation of the provisions of the National Historic Preservation Act and 36 CFR 800 will jointly serve to eliminate impacts to significant cultural resource properties. While residual effects due to vandalism, wildfire, and trespass actions can be expected to occur, no change in such residual effects can be contemplated. Interpretive and nonimpairment prescribed management of significant cultural resource properties operates as a beneficial effect in limiting the potential for such residual effects. Increased activity in various management areas will serve to increase the number of identified cultural properties since new properties are located at a projected rate of one property per 360 acres of inventory directed by specific project needs. A proportion of these cultural resource properties will be added to the managed list and acreage allocations can be expected to increase.

The environmental consequences to cultural resources under this alternative is beneficial. With implementation of BLM regulations, policies, and prescribed management of significant cultural resource properties such properties will be protected against adverse impacts and be enhanced for public enjoyment and education.

Impacts on Wilderness Resources

Quigg West 202 WSA, consisting of 520 acres, would be recommended as suitable for wilderness as a result of this alternative as long as the adjacent 68,050-acre

Forest Service Quigg RARE II area is also recommended for designation. In addition, 7,600 acres would be special management areas and development would be minimal.

With this alternative, the impacts of oil and gas exploration, mineral entry, timber harvest, livestock grazing, utility ROWs, and motorized vehicle use would be the same as Alternative C except on 520 acres of recommended wilderness and 8,120 acres committed to special management. The remaining 19,617 acres in the former WSAs would be open to development which could result in impacts similar to those described in Alternative D.

Conclusion

A total of 520 acres of wilderness would be recommended for addition to the National Wilderness Preservation System provided that the Forest Service Quigg RARE II area is designated wilderness. Wilderness values on the lands would be preserved and maintained. Wilderness characteristics on the 7,600 acres subject to special management would be substantially protected but such control over human activities would be less secure than if the area were designated wilderness. The remaining 19,617 acres from the former WSAs would be subject to the whole range of mitigated impacts from developmental activity with emphasis on wildlife habitat management.

Impacts on Forest Resources

The level of impacts are similar to those in Alternatives A and B. There is an 11 percent increase in the number of acres treated annually (1,352 acres) and a 9 percent increase in the annual harvest (7,030 mbf) as compared to Alternative A. The CFL available for forest management is 19 percent greater (105,020 acres) and the acreage necessary for roads increases by 9 percent (63.6 acres) as compared to Alternative A. There are 69 percent fewer acres withdrawn (7,440 acres) or 6 percent of the CFL and there are 197 percent more acres (64,720 acres) with restrictive management or 62 percent of the available CFL. When compared to the level of harvest without any restrictions or withdrawals, this equates to 17.5 percent less volume harvested annually. All other types of impacts are similar to those described in Alternatives B, C, and D.

Conclusion

Selection of this alternative represents the second greatest opportunity for forest management of the five alternatives. The application of management restrictions continues to result in significant impacts to timber management but nonetheless the impacts are less than in Alternative A.

Impacts on Range Resources

In the short term, the total AUMs available for livestock grazing is projected to be 6,245 AUMs, a 5 percent increase in allocation over Alternative A.

In the long term, AUMs available for livestock grazing are projected to be 8,013 AUMs, a 28 percent increase over the short term and a 15 percent increase over Alternative A (see Table 4-13). Long-term AUM target figures are a combined estimate of additional forage made available because of range improvements, timber harvest, and improvement of vegetative conditions on allotments already under intensive grazing management.

TABLE 4-13

PROJECTED CHANGES IN AUM PRODUCTION FOR ALTERNATIVE E

	AUM	Change	Percent
Short Term	6,245	315	5
Long Term	8,013	1,032	14
Alternative A Short Term	5,930	0	0
Alternative A Long Term	6,981	0	0

The long-term range improvement costs will total approximately $585,600. Maintenance costs on new construction over the long term will run about $160,610 and maintenance on existing projects will add another $299,300 and weed control another $6,800 for a grand total of $1,052,310 for construction and maintenance for the range program over the long term. Table 4-14 summarizes the proposed range improvements.

TABLE 4-14

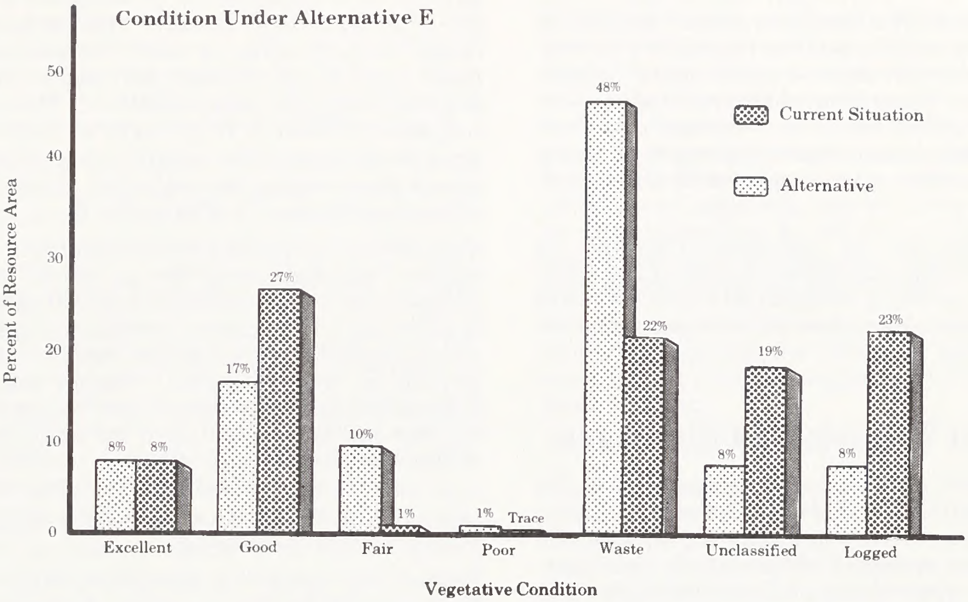
RANGE IMPROVEMENTS AND COST DATA FOR ALTERNATIVE E

Improvement/ Treatment	Unit	Quantity	Cost*
Weed Control	Acres	300	$ 5,100
Fence	Miles	75	375,000
Cattleguard	Each	25	62,500
Spring	Each	38	95,000
Pipeline	Miles	4	48,000

*Cost data over 20-year period includes materials and labor

Figure 4-4

Predicted Changes In Vegetative Condition Under Alternative E



All allotments were analyzed on their own merits to determine if any improvement in resource conditions are necessary. Those allotments that were determined not to need improvement will remain in the same vegetative condition class as Alternative A. Thirty-seven allotments are expected to improve in vegetative condition, 17 of these allotments are in the C category while 20 allotments are in the M and I category.

Improvement made on the M and I category allotments will be a combination of the effects of range improvements and transitory range created by timber harvesting. It is projected that in each of the 37 allotments expected to improve, the vegetative condition class will move up one condition class in the poor and good classes only. Figure 4-4 illustrates the expected changes in vegetative condition over the long term under this alternative. This illustration is a comparison of only lands potentially available for grazing and does not include approximately 33,000 acres excluded from grazing under this alternative.

Weed control efforts will cover approximately 300 acres over the next 20 years. Approximately 200 acres of this amount will be concentrated along roadsides on public lands in an effort to control the advance of weeds into areas that have been logged. It is felt that if weeds can be controlled along roads before they get into areas cutover in timber harvest programs the weed control effort will be less expensive and more effective. Approximately 100 acres in spot infestations in off-road areas will be treated over the next 20 years. The effort may be by either chemical or biological means depending on the weed being treated. Primary target weeds will be knapweed, musk thistle, and leafy spurge.

Land adjustments will have a minimal effect upon livestock grazing as most of these tracts have very low grazing capacity due to dense timber stands.

Conclusion

The major impact of this alternative on the range resource would be the gradual increase in livestock carrying capacity of 28 percent over the next 20 years. It is expected that more than 90 percent of the range available for livestock grazing (excluding logged areas) will be in good or better condition over the long term.

Weed control efforts will be initiated on some 300 acres, primarily along roadsides using chemical treatments unless new biological methods prove satisfactory to control the spread of knapweed, musk thistle, and leafy spurge. Range improvement construction and maintenance will cost $1,052,310 over the long term or an average annual cost of $52,615.

All increases in AUM allocations over 15 percent of the present level will be phased in over a five-year period, after adequate monitoring to ensure proper stocking levels. Forage created through timber harvesting will be allocated on a temporary five-year basis and not be renewed until adequate monitoring studies confirm a proper stocking level for that logged site.

Modest improvement in vegetative condition is expected in the long term. About 51 percent of lands available for livestock grazing should be in good and excellent condition as compared to 33 percent presently.

Impacts on Wildlife and Fisheries

This alternative would propose managing 99,710 acres (69 percent) with stated wildlife habitat goals in the MA guidelines. The remaining acreage (45,950 acres) would be managed with wildlife considerations through application of Standard Operating Procedures and mitigative or restrictive recommendations.

Mountain Coniferous Habitat

The resource area contains about 130,000 acres (89 percent) of this habitat. Timber management on 105,020 acres of CFL occurs primarily on big game summer range at the rate of 1,352 acres treated and 10.5 miles of new road constructed annually. This is an increase compared to Alternative A. The short-term impacts of this action will disturb most species and displace some species. Potential impacts include reduced fall security cover for big game; loss of effective habitat due to increased vehicle access; loss of thermal and security cover immediately adjacent to winter range foraging areas; reduced big game use of clearcuts and moist sites by alteration of adjacent timber stands; loss of specific vegetative, successional stages (mature, old-growth) necessary to meet many species requirements; and disturbance of effective seasonal habitat during high energy demand periods such as fawning, calving, nesting, brood rearing, and winter. Short-term mitigating restrictions and actions will reduce the magnitude of site specific impacts in most cases. There will be few or no immediate beneficial impacts.

The long-term adverse impacts would potentially be small considering that 36,900 acres (35 percent) of CFL do not have stated management area wildlife goals, only protective stipulations for elk habitat components and possible road management restrictions. This is a decrease compared to Alternative A. Over the life of the plan, harvest and new road construction will amount to about 27,040 acres treated and 210 miles of new road. This is an increase compared to Alternative A. Habitat alterations by timber activities such as clearcut, seed tree, etc. are expected to create about 9,194 acres (34 percent) of open forage. About 17,846 acres (66 percent) of timbered forage will be created through shelterwood harvest methods and commercial thinning. This is an increase compared to Alternative A. The consequence of this alteration in vegetative structure and composition will result in more acres in early successional stages, fewer acres in late successional stages, and a trend toward even-age management. The long-term response of wildlife to changes in vegetation and access will cause shifts in species and populations to match requirements for suitable habitat. This is an increase compared to Alternative A.

The balance of the CFL in the mountain coniferous habitat, approximately 68,120 acres (65 percent) occurs at both upper and lower elevations consisting of either big game summer or winter range or of special management areas where timber activities are guided by wildlife goals. Timber management actions and consequential adverse impacts to wildlife habitat will be moderated in the short term due to mitigating restrictions. Habitat quality would be maintained or improved over the long term for certain species or species groups. This is an increase compared to Alternative A.

Timber management in the remainder of the forested land (about 24,980 acres) would be limited to rights-of-way, sanitation, or salvage necessary to meet wildlife or other resource goals. This is a decrease compared to Alternative A.

Range management under this alternative would occur on 111,890 acres total, with the mountain coniferous habitat contributing substantially to the total. Intensive livestock management is prescribed for about 81,294 acres or about 73 percent of the total 111,890 acres and would hve stated wildlife objectives. This is an increase compared to Alternative A. The remaining acresa (30,596 acres) would not have stated wildlife objectives for grazing management. This is a decrease compared to Alternative A.

The impacts on wildlife habitat by livestock grazing in this habitat ranges from direct forage competition with big game species to nesting, brood rearing, and foraging conflicts with small game and nongame species. Additionally, there is evidence of social intolerance by some big game species for livestock. Within the forest habitat types, various successional stages occur as a result of timber management practices which create transitory range and roads into formerly unlogged areas. The majority of the existing allotments include forested areas not currently accessible to livestock grazing; however, these areas provide suitable habitat for many wildlife species. Vegetative changes in these areas will produce additional accessible livestock forage that will ultimately cause wildlife habitat use conflicts within allotments. In many cases allotment boundaries and pastures are unfenced, but depend on natural barriers such as uncut timber or terrain to control livestock movement. As these areas are developed through logging and road building, livestock move into previously ungrazed areas (the cutting units themselves or parks and riparian zones). Mitigative measures such as fencing, leaving vegetative barriers, or blocking roads and trails to livestock movement may be successful in reducing livestock and wildlife conflicts in the short term. In the long term, the conflict will increase as more acres of previously uncut timber are harvested and the areas grazed. The dispersement of livestock over a greater area of one or more allotments increases the chances of social intolerance by elk. This is an increase compared to Alternative A.

Through the implementation of 20 AMPs, 5,370 acres (73 percent) of unsatisfactory big game winter range forage is expected to improve to satisfactory condition. This is an increase compared to Alternative A. However, 1,989 acres of unsatisfactory winter range forage outside of AMP areas will remain in unsatisfactory condition. This is a decrease compared to Alternative A. Present satisfactory winter range forage (23,592 acres) on all allotments is expected to continue in satisfactory condition. This is the same compared to Alternative A. The exclusion of grazing from 33,770 acres will enhance wildlife habitat primarily in elk summer and fall range.

Mineral exploration and development in the mountain coniferous habitat ranges from the mining of gold, phosphate, and barite to the removal of sand and gravel. The short-term impacts of mining cause disturbance or displacement of wildlife on small acreages and some loss of habitat. Duration of extraction is highly variable for each operation, ranging from intermittent work each year for a few years to continuous work for many years.

The short-term impacts from phosphate, oil, and gas development are essentially negligible during the exploration phase through standard and special stipulations. However, the stipulations will not fully mitigate the long-term impacts throughout the duration of development and production. Based on a past low interest in oil and gas activity and only one phosphate mine, the outlook for widespread habitat loss is slight. This is the same as compared to Alternative A.

Mountain Grassland Habitat

The resource area contains about 9,500 acres (7 percent) of mountain grassland habitat. Timber management has a direct influence on the value of these mountain grasslands for wildlife habitat. Silviculture prescriptions in the edge between forest and grassland will play an important role in determining habitat quality of the grasslands. Harvest and thinning activities adjacent to the grasslands will have short-term impacts through displacement or disturbance of wildlife. Mitigation through the application of management area guidelines will serve to reduce adverse results in the short term for most grasslands. Long-term impacts from vegetative alteration on adjacent forest land should be successfully mitigated for grasslands lying within areas emphasizing wildlife habitat management. Those grasslands within areas emphasizing timber management would have few mitigative restrictions. This is a decrease compared to Alternative A.

The majority of acres in the mountain grassland habitat will be affected by range management practices and occur as both summer and winter big game ranges. Those allotments under AMPs either contain or will have stated wildlife goals achieved through livestock distribution and time of use. In the short term, substantial improvement of unsatisfactory grassland winter ranges is expected following full implementation of AMPs. In the long term, all unsatisfactory winter range under AMPs would be raised to satisfactory forage condition. Those acres of grassland in allotments outside of AMPs are expected to remain in the same forage condition for the short and long term. There are corresponding increases and decreases of unsatisfactory winter range forage compared to Alternative A. (See acreage figures presented under the range management discussion for mountain coniferous in this alternative.)

Mineral exploration and development impacts on wildlife habitat in the mountain grassland habitat are similar to those discussed under mountain coniferous habitat.

Riparian and Wetland Habitat

The resource area contains about 6,100 acres (4 percent) of riparian and wetland habitat. Timber management activities under this alternative would essentially be excluded on 1,000 acres, be restricted by wildlife goals for old-growth timber corridors and nongame habitat diversity on 2,500 acres, and be guided by practices to achieve water quality standards in other areas of forest development. A portion of the total acres occurs in special management areas potentially unavailable for timber management. Short-term impacts are partially mitigated through management area guidelines and SOP. Long-term impacts from site disturbance will be negligible with the exception of some old-growth loss. This is a decrease compared to Alternative A.

Range management affects about 80 percent of riparian and wetland habitat. Through full implementation of AMPs, 3,094 acres of unsatisfactory riparian is expected to improve to satisfactory condition. This amounts to 74 percent improvement. About 1,110 acres outside of AMP allotments would remain in unsatisfactory condition. Short-term impacts will show gradual improvement in the riparian condition attributed to grazing. Over the long term, AMP acres would be in satisfactory condition. Unsatisfactory acres outside of AMPs would continue as unsatisfactory riparian. This is a decrease compared to Alternative A. Satisfactory riparian (637 acres) in all existing allotments would continue in satisfactory condition for both the short and long term. This is the same compared to Alternative A.

Mineral exploration and development impacts in riparian areas are the least mitigatable for the placer operations. Sand and gravel permits will not be allowed in riparian areas. Phosphate, oil, and gas development will be designed for riparian protection. Impacts discussed under the mountain coniferous habitat are similar for mining claims, however the importance is exponential because the riparian zone provides a high diversity of habitat for a large number of species. Currently there are about 98 acres of riparian in mineral development areas. This is the same compared to Alternative A.

Aquatic Habitat

The resource area has about 67 miles of streams and rivers producing fish. Timber management activities associated with this habitat are most critical because of the need to build roads. The application of riparian management area guidelines and SOP avoid or reduce adverse impacts on the aquatic habitat. Short-term impacts will be encountered for stream crossings. However, long-term impacts are negligible except for periodic maintenance or replacement. This is the same as compared to Alternative A.

The range management program affects 48 percent (29 miles) of aquatic habitat under this alternative. Impacts on fisheries habitat here are the same as discussed for range management under aquatic habitat in Alternative C.

Mineral exploration and development impacts on fisheries habitat here are the same as discussed in the aquatic habitat section of Alternative C.

Threatened and Endangered Species Habitat

Threatened and endangered species impacts for this alternative are the same as discussed for Alternative B.

Conclusion

Under Alternative E there are few or no short-term benefits from timber management, but some potential long-term impacts on big game summer range (about 36,900 acres) because wildlife habitat management is not emphasized. This is a decrease compared to Alternative A. At lower elevations timber management impacts on big game winter range would be moderated in the short term and tend toward satisfactory maintenance or improvement in the long term. This is an increase compared to Alternative A. Range management impacts on habitat at upper and lower elevations are mostly mitigated in both the long and short term through stated AMP wildlife goals on 73 percent of the allotment area. This is an increase compared to Alternative A. Conflict between livestock and wildlife would continue on 26 percent of the grazing allotments in both the short and long term, particularly in areas of newly created transitory range. This is a decrease compared to Alternative A. Of the total unsatisfactory big game winter range forage, 5,370 acres (73 percent) would be expected to improve to satisfactory condition. The development of mining claims will cause significant impacts on limited acres of wildlife habitat in both the short and long term. However, relatively few acres are currently disturbed by mining development. This is the same compared to Alternative A. Other energy and mineral leases have stipulations to mitigate impacts on wildlife habitat. At the current activity level, short and long-term impacts are negligible for phosphate, oil, and gas activities. This is the same compared to Alternative A.

Timber management will have some short-term impacts on the mountain grassland habitats but few long-term impacts. This is a decrease compared to Alternative A. Intensive livestock management will show long-term forage improvement on AMP acres. This is an increase compared to Alternative A. There will be little or no improvement outside of AMP allotments (about 27 percent of total unsatisfactory big game winter range forage). This is a decrease compared to Alternative A. Mineral impacts on wildlife habitat will be about the same as described for mountain coniferous in this conclusion section. This is the same compared to Alternative A.

Riparian and wetland habitats will experience few unmitigated short-term impacts, and there will be negligible long-term impacts with the exception of some old-growth loss in timber management areas without wildlife goals. This is a decrease compared to Alternative A. Through AMPs, 3,094 acres (74 percent) of unsatisfactory riparian is expected to improve to satisfactory condition in the long term. This is an increase compared to Alternative A. The remainder of unsatisfactory and satisfactory riparian will continue in current condition. This is a decrease in unsatisfactory riparian attributed to grazing compared to Alternative A. Mineral impacts on wildlife habitat are most significant where there is development of mining claims in both the short and long term compared to other energy and mineral development. However, at the completion of mining activities rehabilitation of the site is required. Other energy and mineral development is not permitted. This is the same compared to Alternative A.

Impacts to aquatic habitat are the same are presented in the conclusion section of Alternative C.

Land base adjustment under this alternative is the same as discussed for the conclusion of Alternative B.

Impacts on Social and Economic Conditions

Under this alternative just over 7,030 mbf would be harvested per year. This level of harvest provides employment for 63 workers. At a 1981 average wage of $19,984 this level of employment will add $1,258,992 to the local economy. At an average stumpage value of $46.80 per thousand board feet the timber is valued at $329,004. The indirect income to the local economy from the wages earned adds an additional $987,012. Other impacts are as discussed under Alternative A.

Under this alternative, twelve allotments would receive increased grazing and two would receive reduced grazing use in the short term. On the average, changes range from less than 1 percent in Class 4 to an increase of 38 percent in Class 2. These changes result in a less than 1 percent increase in income on each size class (see Appendix R). Some individuals could receive a large income increase from a larger than average AUM increase. Most however will be very close to the average. Table 4-15 lists the number of ranches in each size class that will be affected by this alternative.

TABLE 4-15

NUMBER OF RANCHES IN EACH SIZE CLASS AFFECTED BY THE GRAZING PROGRAM IN ALTERNATIVE E

Size Class	Ranchers Affected in the Short Term	Ranchers Affected in the Long Term
1	1	4
2	4	5
3	4	9
4	5	10

This alternative would increase the number of acres of land available for oil and gas leasing. Most of these acres are available for leasing with seasonal restrictions. These restrictions would create some difficulty in scheduling activities and in some cases could increase drilling costs. These costs however, would be an insignificant portion of the cost of exploratory drilling. The relative cost of the commodity on a world wide basis has a much greater effect on exploration decisions than specific exploration costs.

The withdrawal of public land from mineral entry would increase slightly under this alternative. This should have an insignificant effect on the opportunity to locate claims on public land.

The area available for roadless recreation would decrease. This change would tend to cause those who use BLM lands for roadless recreation to use nearby Forest Service lands. The supply of roadless areas is probably sufficient to handle current demands.

This alternative would increase the number of acres where wildlife habitat management will be emphasized. To the extent that these improvements increase animal numbers, the opportunities for the consumptive and nonconsumptive use of these animals would increase. The level of hunting available is determined by harvest levels and licensing which is the responsibility of the Montana Department of Fish, Wildlife, and Parks. The wildlife habitat and possibly the population would improve under this alternative.

Under this alternative 520 acres adjacent to a Forest Service roadless area would be recommended for wilderness designation. This designation would not have a significant affect on local social and economic conditions. The release of the other wilderness study areas for other uses could reduce the area available for use for primitive recreation purposes. This would likely be a loss of opportunity rather than a loss to the economy since there are a number of substitute areas within a short drive.

Conclusion

This alternative provides a timber harvest which could create 63 jobs or 6 more than at present. There would also be a small increase in some rancher income from increases in BLM grazing.

Cumulative Impacts

The total spectrum of multiple use management has both direct and indirect impacts on wildlife habitat. The wildlife section analyzed the separate impacts of the actions of each resource program. However, when these programs affect the same land area, their impacts cumulatively have greater significance for wildlife habitat. Table 4-16 compares the percentage of public land which will be managed to achieve wildlife habitat goals. These goals are listed in the Management Area Prescriptions (see Appendix A) and also in activity plans.

TABLE 4-16

PERCENT OF PUBLIC LAND MANAGED TO ACHIEVE WILDLIFE HABITAT GOALS

	Alternatives				
	A	B	C	D	E
Percent of P.L. with wildlife habitat goals	51	22	70	70	69
Percent of CFL with wildlife habitat goals	28	0	66	66	65
Percent of CFL with riparian habitat with wildlife habitat goals	23	0	71	71	57
Percent of P.L. grazed by livestock that has wildlife habitat goals	30	66	78	78	74

The cumulative adverse impacts to wildlife habitat due to grazing, timber management, and mineral activities are expected to be moderate under Alternative A. Under Alternative B, the cumulative impacts are expected to be moderate. Intensive grazing management will bring substantial improvement to wildlife habitat. Under Alternatives C and D, the cumulative impacts are expected to be low. Under Alternative E, the cumulative impacts are expected to be low to moderate.

Unavoidable Adverse Impacts

Wilderness

The impacts to the wilderness resource in Alternatives B, D, and E represent to varying degrees unavoidable adverse impacts. If the areas presently under consideration for wilderness are returned to multiple use management by Congress, the areas would be available for timber harvest, livestock grazing, wildlife habitat and watershed improvement projects, energy and mineral development, utility and transportation corridor development, and recreational improvements. All these activities would impact the WSA's naturalness and solitude. These management activities would leave their imprint on the areas and make them unsuitable for future consideration for wilderness status.

Visual

The management plan presented in Alternative B would allow a deterioration in visual resources in sensitive areas (riparian zones, recreation sites, special management areas, and visual corridors).

Relationship Between Short-term Use and Long-term Productivity

The minerals program as regulated by the 3809 Regulations would allow mining operations to impact the productivity of the area for other resources. These impacts would be greatest for watershed, soils, wildlife and fisheries habitat, and visual resources. Mining operations in the Garnet Resource Area peaked about the turn of the century. However, the impacts of this activity on watershed, soils, etc. are still evident after ninety years.

Active mining operations in the resource area currently occupy only about 40 acres. The impacts on the local area are significant but the total acreage is insignificant over the entire resource area.

Irreversible and Irretrievable Commitment of Resources

Wilderness

The imprint of management activities, such as logging and rights-of-way, associated with multiple use management of backcountry areas would render these areas unsuitable for future consideration for wilderness status. If the areas presently under wilderness study totalling 27,737 acres are not designated as wilderness, the opportunity for wilderness recreation in the area would also be forgone. This represents an irretrievable commitment of wilderness resources for the foreseeable future.

Minerals

The extraction of energy and mineral resources represents an irreversible and irretrievable commitment to use a nonrenewable resource. The process lessens the supply of basic mineral materials to meet future needs.

The creation of wilderness would represent an irretrievable commitment of energy and mineral resources under the present wilderness laws. The Congress would determine if the commitment would remain irreversible into the future.

Forestry

Wilderness designation would represent an irretrievable commitment of timber resources under the present wilderness laws.

Recreation

Intensive timber management will create and sustain a herbaceous understory on sites not currently supporting a herbaceous layer. Native habitat will take on a cultivated character through resource development. This will alter the rugged, natural setting that visitors tend to associate with a recreational experience in western Montana.

CHAPTER 5
CONSULTATION AND COORDINATION

This resource management plan was prepared by an interdisciplinary team of natural resource specialists from the Garnet Resource Area and the Butte District. Beginning in December 1980, a nine step process led to the RMP's formulation. Four of the nine steps, including the review of this document, have allowed for public review and comment. This BLM planning process, is outlined in full in the Introduction. Consultation and coordination with various agencies, organizations, and individuals occurred throughout the planning process.

CONSISTENCY

The BLMs planning regulations require that resource management plans be "consistent with officially approved or adopted resource related plans of other federal agencies, state and local governments, and Indian tribes, so long as the guidance and resource management plans are also consistent with the purposes, policies and programs of federal law, and regulations applicable to public lands . . .". Interested parties have been notified and their comments solicited.

The State Historic Preservation Officer and the Advisory Council on Historic Preservation will be given an opportunity to review the draft RMP.

PUBLIC PARTICIPATION

A Federal Register notice was published on February 20, 1981 that announced the formal start of the planning process.

A preliminary list of 17 major issues was mailed to about 600 individuals and organizations for comment in February 1981. Open houses on the issues were held February 25, 1981 in Drummond, February in Philipsburg, and March 5, 1981 in Ovando. The District 26, 1981 in Missoula, March 3, 1981 Advisory Council also reviewed the preliminary issues and the public response to them in March. As a result of the input from about 100 persons who attended the open houses and 60 written comments, issues were redefined and three new ones were added. These were published for further public comment in November 1981. These were subsequently grouped into five broad issues from which the plan developed. The final list was published in August 1982.

Resource inventories were taken in 1982 and 1983, and a management situation analysis was prepared that examined the capability of the public lands to accommodate the needs and issues previously identified. The criteria for developing the RMP and the District Manager's Concept of the RMP were published for public review in July 1983. Five comments were received.

In early 1984, work began on the formulation of alternatives. Resource specialists aided in the development and made suggestions on resource allocations leading to the analysis of alternatives as laid out herein.

Other informal coordination with the public took place throughout the planning process by means of personal contacts, phone calls, etc.

AGENCIES AND ORGANIZATIONS CONTACTED

Federal Agencies

U. S. Department of Agriculture
  Farmers Home Administration
  Forest Service
  Soil Conservation Service
U. S. Department of the Interior
  Bureau of Indian Affairs
  Bureau of Mines
  Fish and Wildlife Service
  Geological Survey
  National Park Service
Environmental Protection Agency

State Agencies and Organizations

Montana Bureau of Mines and Geology
Montana Department of Agriculture
Montana Department of Health and Environmental Sciences
Montana Board of Natural Resources and Conservation
Montana Department of Natural Resources and Conservation
Montana Division of Forestry
Montana Department of Fish, Wildlife, and Parks
Montana Department of Highways
Montana Department of State Lands
Montana State Historic Preservation Officer
Montana State Clearinghouse
Montana State University
Office of the Governor
University of Montana

Congressional Offices

Office of Congressman Williams
Office of Senator Baucus
Office of Senator Melcher

Montana Legislators (1981-1984)

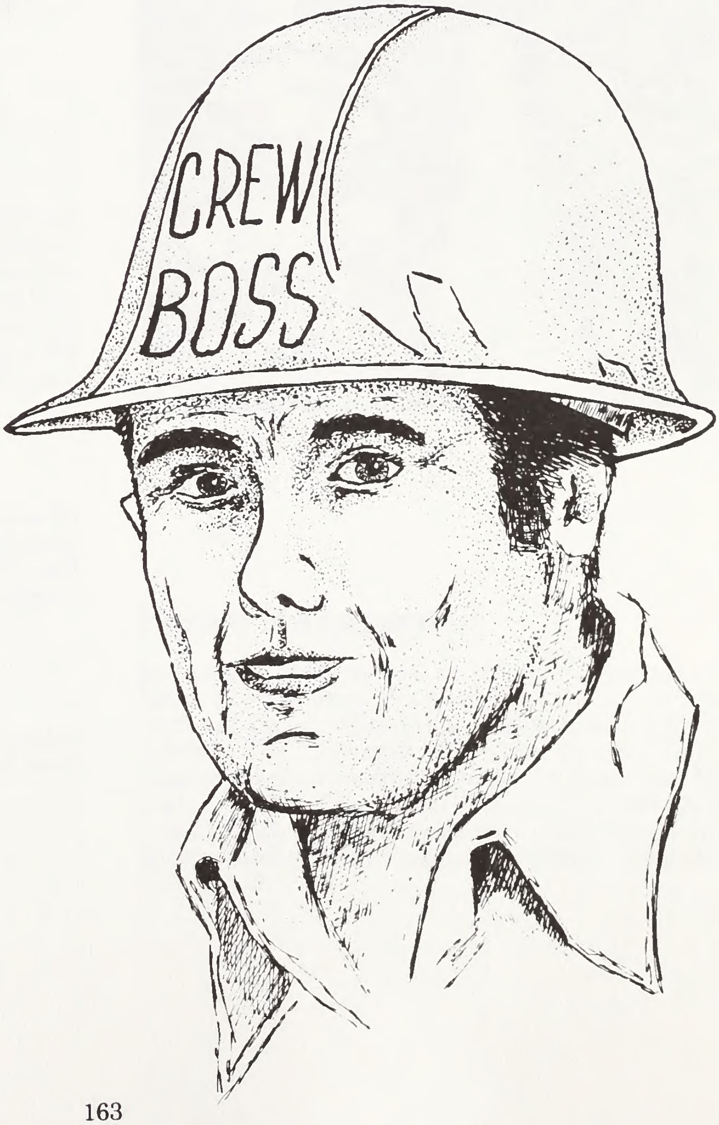
Ben Hanson
John Manley
Bob Ream
M. K. Daniel

Organizations and Businesses

Montana Cattlemen's Association
Montana Woolgrowers
Montana Stockgrowers Association
Bonita-Clinton-Potomac Cattle Association
Greenough Woodland Grazing Group
Public Lands Council
Institute of the Rockies
Outdoor Resources Center
Wilderness Institute
The Wilderness Society
Montana Wilderness Association
Clark Fork Protective Association
Upper Clark Fork Valley Protective Association
Nature Conservancy
Environmental Information Center
Natural Resources Defense Council
NRDC Public Lands Institute
Outdoors Unlimited
National Council of Public Land Users
Champion Timberlands
Burlington Northern, Incorporated
Plum Creek Timber Company
Inland Forest Resource Council
Montana Loggers Association
Montana Women in Timber
Louisiana Pacific Corporation
Pyramid Mountain Lumber Company
Montana Lumber Sales, Incorporated
Stoltze Land and Lumber Company
Chamber of Commerce
Montana Power Company
Missoula Electric Cooperative
Blackfoot Telephone Cooperative
Western Montana Trade Association
Pacific Power and Light
Butte District Multiple Use Advisory Council
Butte District Grazing Advisory Board
League of Women Voters
Montana Wildlife Federation
Western Montana Fish and Game Association
Defenders of Wildlife
Trout Unlimited
Montana Wildlife Society
Montana Historical Society
Western Montana Ghost Town Society
Garnet Preservation Association
Montana 4x4 Association
Historical Research Associates
Hellgate Motorcycle Club
Swan River Trophy Hunters
Mountaineering Club
Pintlar Audubon Society
Ponderosa Snow Warriors
5 Valley 4 Wheel Drive Club
Montana Snowmobile Association
Seeley Lake Driftriders
Missoula Snowgoers
Anaconda Sportsmens Club
Montana Outfitters and Guides Association
Champlin Petroleum Company
Montana Mining Association
Exxon Minerals Company
Montana Barite Company
Utah International Incorporated
Peabody Development Company
Atlantic Richfield Company
Amoco Minerals Company
Amoco Production Company
Alt & Hyndman
Earthworks, Incorporated
Continental Oil Company
Noranda Exploration Incorporated
Burwest
Geoplan Incorporated
Union Carbide Corporation
Cominco American
Rocky Mountain Oil & Gas Association
Phillips Petroleum
Hellgate Mineral Society

Others Contacted

All the Garnet Resource Area grazing lessees were contacted as well as area libraries, newspapers, radio, and television stations and numerous individuals.



CHAPTER 6
LIST OF PREPARERS

PROJECT MANAGEMENT

Project Manager

David R. Baker was responsible for the overall management of the interdisciplinary team and coordination of the document preparation process. His qualifications include experience as an interdisciplinary team member on the Dillon Resource Area and Jarbidge Resource Area Management Framework Plans, Assistant Area Manager (4 years) and Outdoor Recreation Planner (3 years) for the Garnet Resource Area, Realty Specialist (4 years) for the BLM, a BS in Forestry from the University of Montana, and graduate work in Outdoor Recreation Management at the University of Wyoming.

Technical Coordinator

Alexina M. McCullough assisted the project manager and provided technical guidance to the interdisciplinary team. Her qualifications include experience as a Realty Specialist (5 years) and Records Specialist (3 years) for the Garnet Resource Area, a BA from the University of Montana, and graduate work at Catholic University, Washington, D.C.

INTERDISCIPLINARY TEAM

Soils and Watershed

Vito A. Ciliberti, Jr. served as the team specialist on soils and hydrology. His qualifications include experience as a Soil Scientist and Hydrologist (6 years) for the Garnet Resource Area, Soil Scientist for the University of Montana (2 years), Process Engineer for water quality and process control (13 years), a BS from North Carolina State University, and a MA and PhD from the University of Montana.

Energy and Minerals

Melinda J. Mason served as the team specialist for minerals and geology. Her qualifications include experience as a Geologist (6 years) for the Garnet Resource Area and a BA in Geology from Stephens College, Columbia, Missouri.

Lands

Alexina M. McCullough served as the team specialist on surface ownership. (See the Technical Coordinator section for qualifications.)

Forest Management

Richard E. Betts served as the team specialist for forest management. His qualifications include experience as an interdisciplinary team member for the Colstrip EIS, Forester (8 years) for the Garnet Resource Area, Forester (15 years) for the former Missoula District of the BLM, Forester (7 years) for the Eugene District, and Forester (2 years) for the Forest Service, and a BS in Forest Management from Colorado A & M.

Range Management

Lawrence H. Newman served as the team specialist for range management. His qualifications include experience as a Range Conservationist (8 years) for the Garnet Resource Area, Natural Resource Specialist (10 years) for the former Missoula District of the BLM, and Forester (3 years) for the Forest Service, and a BS in Forestry (Range Option) from the University of Montana.

Historic and Cultural Management

John F. Taylor served as the team specialist for cultural and historic resources. His qualifications include experience as an interdisciplinary team member on the Headwaters RMP/EIS, an Archaeologist (8 years) with the BLM, Archaeologist/Historian (2 years) with the National Park Service, a BA in Anthropology from the University of Pennsylvania, and a MA in Anthropology from the University of Montana.

Recreation and Visual Resources

William C. Hollenbaugh served as the team specialist for recreation and visual resources. His qualifications are Recreation Planner with the Garnet Resource Area (4 years), Planning and Environmental Coordinator with the BLM (4 years), Recreation Planner with Missoula County (1 year), Associate Professor for Recreation and Land Use Planning with the University of Montana (3 years), Recreation Planner with the Bureau of Outdoor Recreation (7 years), Regional State Park Supervisor with the Pennsylvania Department of Forests and Water (4 years), a BS and MS from Pennsylvania State University, and advanced graduate studies in recreation management from the University of Michigan.

Wildlife

David W. McCleerey served as the team specialist for wildlife. His qualifications include experience as a Wildlife Management Biologist (9 years) for the Garnet Resource Area, Wildlife Management Biologist (3 years) for the BLM, Wildlife Technician (2 years) for the Forest Service, and a BS in Wildlife Biology from the University of Montana.

Social and Economic Conditions

David K. Nelson served as the team specialist for economic and social analysis. His qualifications include experience as an interdisciplinary team member on the Headwaters RMP/EIS, Economist (5 years) and Planner (1 year) with the BLM, and a BS in Economics and a MS in Agricultural Economics from Montana State University.

Wilderness

Philip A. Gezon served as the team specialist for wilderness. His qualifications include experience as an interdisciplinary team member for the Fuelco Missouri River Crossing EA, technical coordinator for the Missouri Breaks Wilderness Suitability Report/EIS and the Bitter Creek Wilderness EIS, Outdoor Recreation Planner (7 years) with the BLM, a BA in History from Kenyon College, and a MS in Outdoor Recreation Management from the University of Oregon.

WRITING TEAM

The Garnet RMP was written by a team of writers working closely with the interdisciplinary team. Table 6-1 lists the team members and the sections written.

TABLE 6-1

WRITING TEAM

Writer	Sections
Dan Lechefsky	Chapter 2 and its Appendixes
Carole Mackin	Chapters 1, 3, 4, and 6
Millard Hulse	Chapter 5
Philip Gezon	Wilderness Appendixes

DOCUMENT PRODUCTION TEAM

The Garnet RMP was produced by the staff of the Butte District and Montana State Office. Table 6-2 lists the production team members and their function.

TABLE 6-2

DOCUMENT PRODUCTION TEAM

Function	Name
Planning Coordinator	Dan Lechefsky
Public Participation Coordinator	Millard Hulse
Editor, Environmental Coordinator	Carole Mackin
Production Manager	Mark Koski
Lead Word Processor	Suzanne Brist
Word Processor	Delores Vavas
Illustrator	Larry Davis
Cartographic Technician	Chuck Sigafoos
Cartographic Technician	Bill Keiffer
Cartographic Technician	Corla De Bar
Offset Photographer	James Chapman
Printing Specialist	Rick Kirkness
Typesetter	Pam Dandrea

APPENDIX A
MANAGEMENT AREA PRESCRIPTIONS

APPENDICES

A total of 14 management areas have been identified for use in the Garnet RMP. Each management area consists of units of public land with similar resource potentials and limitations that are designated for management under a common set of management goals and guidelines. Management area boundaries do not always follow easily located topographic features or legal subdivisions. The boundaries are flexible to assure proper management of resources identified through additional on-the-ground reconnaissance and project planning. Each management area may occur in several places within the resource area. The maps displaying management areas for Alternatives A-E (in back map packet) must be used in conjunction with these descriptions.

Management area descriptions, goals, and guidelines for the Garnet Resource Area are defined in this appendix. The guidelines include numerous mitigative and resource coordination measures as required by NEPA and other laws, regulations, and policies.

MANAGEMENT AREA 1: RIPARIAN PROTECTION ZONE

Description

Management Area 1 includes lands dominated by riparian vegetation, adjacent to rivers, perennial and intermittent streams, lakes, ponds, bogs, marshes, seeps, and wet meadows with high values for wildlife and fish habitat, visual and recreational enjoyment, watershed and water quality protection, and livestock forage.

Management Goals

1. Manage riparian areas to maintain or enhance their value for wildlife, recreation, fishery, and aquatic habitat.

2. Provide some elements of old-growth or mature forest for wildlife habitat.

3. Provide opportunities to improve wildlife and fisheries habitat through specifically prescribed vegetative manipulation.

4. Maintain or enhance site productivity, water quality, and stream stability.

Management Guidelines

1. Livestock grazing generally will be permitted where use has been established. Grazing systems and management practices will be designed to maintain or improve riparian vegetation, aquatic habitat conditions, and streambank stability.

2. Oil and gas leases will be issued with standard stipulations and special stipulations as needed.

3. Locatable minerals will be regulated by 3809 Regulations. Mining activities will be guided by management goals.

4. Mineral material permits generally will not be issued.

5. Herbicides and insecticides will not be used.

6. Commercial forest land is set aside.

7. Noncommercial forest land is unavailable for woodlands product harvest.

8. Firewood collection will not be authorized. Exceptions may be permitted where compatible with management goals.

9. New roads will avoid riparian zones, except where required to cross streams or to provide access to meet management goals. Existing roads in the riparian zone will be reviewed for possible stabilization, closure, or relocation outside the riparian zone.

10. A variety of dispersed and water based recreation activities are permitted and may be supported by the development of river access, trails, and trailhead facilities. Cooperative river management programs for recreation will be encouraged with appropriate BLM participation on the Clark Fork River, Blackfoot River, and Rock Creek.

11. Motorized vehicle use will be restricted to open roads and trails. Exceptions may be permitted for snowmobile use.

12. The area will be managed to meet the visual quality objective of Visual Resource Management Class II or III from the viewpoints identified on the visual sensitivity maps. Temporary departures from this visual quality objective may be acceptable when long-term visual values require such an action, or essential road access into other management areas is impossible without this temporary departure. Visual quality rehabilitation measures will be taken where the visual quality objective is not being met.

13. These lands generally will remain in public ownership. However, exceptions may be permitted where exchanges would result in acquisition of lands with greater public values.

14. These lands will be avoidance areas for utility corridors.

MANAGEMENT AREA 2: RIPARIAN MULTIPLE USE ZONE

Description

Management Area 2 includes lands dominated by riparian vegetation, adjacent to perennial and intermittent streams, ponds, bogs, marshes, seeps, springs, and wet meadows with value for wildlife and fish habitat, visual and recreational enjoyment, watershed and water quality protection, and livestock forage.

Management Goals

1. Manage riparian areas to maintain or enhance their value for wildlife, recreation, fishery, and aquatic habitat.

2. Under the principles of sustained yield, manage suitable and available commercial forest land with operational restrictions that maintain or improve riparian zone values.

3. Provide elements of old-growth or mature timber for wildlife habitat.

4. Maintain or enhance site productivity, water quality, and stream stability.

Management Guidelines

1. Livestock grazing generally will be permitted. Grazing systems and management practices will be designed to maintain or improve riparian vegetation, aquatic habitat conditions, and streambank stability.

2. Oil and gas leases will be issued with standard stipulations and special stipulations as needed.

3. Locatable minerals will be regulated by 3809 Regulations. Mining activities will be guided by management goals.

4. Mineral material permits generally will not be issued.

5. Herbicides and insecticides will not be used.

6. The width of the riparian influence zone will be determined on a site-specific basis for project plans. For general land management planning the management area will be considered as 75 feet on either side of designated stream channels or other aquatic features.

7. Timber management activities will be designed to maintain or improve riparian zone values.

8. Noncommercial forest land is available for wood product harvest. Generally, harvest will only occur when scheduled timber sales on adjacent commercial forest land provide an opportunity for sanitation or salvage, or when multiple use management goals require silvicultural treatment or habitat improvement to obtain desired stand structure and composition.

9. Firewood collection may be authorized. Closures may be implemented where needed to achieve management goals.

10. Machine scarification will not be used on slopes over 40 percent or in the riparian buffer zones designated in Table A-1.

TABLE A-1

RIPARIAN BUFFER ZONE

Land Slope	Buffer Zone
10%	75 feet
20%	130 feet
30%	170 feet
40%	210 feet

11. No wheel or crawler vehicles will operate within 75 feet of perennial and intermittent streams, except as required for road construction at stream crossings. Timber harvest and site preparation will maintain a minimum 75 feet wide strip of vegetation along stream channels to filter sediment and organic debris from disturbed areas.

12. New road locations will avoid the riparian zones, except where required to cross streams or to provide access to meet management goals. Road location and design adjacent to seeps, bogs, marshes, and wet meadows should avoid diverting flow of water from riparian features below roads or draining riparian features above roads.

13. A variety of dispersed and water based recreation activities are permitted and may be supported by the development of access trails and trailheads.

14. Motorized vehicle use will be restricted to open roads and trails. Exceptions may be permitted for snowmobile use.

15. The area will be managed to meet the visual quality objective of Visual Resource Management Class II or III from the viewpoints identified on the visual sensitivity maps. Temporary departures from this visual quality objective may be acceptable when long-term visual values require such an action, or essential road access into other management areas is impossible without this temporary departure. Visual quality rehabilitation measures will be taken where the visual objective is not being met.

16. These lands may be available for exchange or sale. All proposals will be evaluated.

17. These lands may be available for consideration as utility corridor if compatible with management goals.

MANAGEMENT AREA 3: GENERAL FOREST MANAGEMENT

Description

Management Area 3 consists of commercial forest lands of varying physical environments classified as suitable for timber management through Timber Production Capability Classification (see Appendix C).

Management Goals

1. Under the principles of sustained yield, manage suitable and available commercial forest land to realize timber growing potential.

2. Maintain site productivity, water quality, and stream stability.

3. Provide for dispersed recreation opportunities, wildlife habitat, and livestock use within the constraints of 1 and 2 above.

4. Provide elements of old-growth wildlife habitat in the immediate vicinity of important big game summer and fall habitat features such as wallows, licks, security areas, etc.

Management Guidelines

1. Livestock grazing generally will be permitted. Fencing, herding. manipulation of salt and water, or adjustments in the pasture rotation schedule will be used to protect regeneration in plantations. The number of Animal Unit Months authorized may be increased, reduced, or relocated in response to vegetative changes.

2. Oil and gas leases will be issued with standard stipulations.

3. Generally, these lands are available for mineral exploration and production. Locatable minerals will be regulated by the 3809 Regulations. Mining activities will be guided by management goals.

4. Project plans will incorporate considerations for elk summer habitat, deer and elk winter ranges, riparian habitat, and nongame wildlife habitat management where these values are present or potentially present.

5. Specific big game features such as wallows, mineral licks, and important forage and resting sites associated with mesic areas will be protected with a buffer strip in which sanitation and salvage or selection harvest maintaining a minimum 70 percent of existing or normal tree canopy is permitted. For planning purposes, the width of the buffer strip will be mapped as 200 feet from the perimeter of the feature or complex of features. For project activity, the buffer strip width may vary, depending on the effectiveness of vegetative and topographic screens, but will not exceed 300 feet. Cutting unit boundaries will be adjusted so that the feature is contiguous to forested security cover. Skidding equipment should not be permitted within 100 feet of the feature and logging debris should be removed from all trails leading to the feature.

6. Riparian areas not designated Management Area 1 or Management Area 2 will be recognized in activity plans, and Best Management Practices for the protection of water quality and riparian features will be applied. The width of the riparian influence zone will be determined on a site-specific basis.

7. Timber harvest systems will include varying proportions of clearcut, seed tree, shelterwood, and selection depending on stand and site productivity and silvicultural objectives.

8. Timber harvest and slash treatment practices will be designed to provide opportunities for public firewood collection.

9. Machine scarification will not be used on slopes over 40 percent or in the riparian buffer zones designated in Table A-2.

TABLE A-2
RIPARIAN BUFFER ZONES FOR TOLERANT AND SENSITIVE SOILS

Land Slope	For General Situation	Buffer Zone for Sensitive Soils
10%	45 feet	75 feet
20%	65 feet	130 feet
30%	85 feet	170 feet
40%	105 feet	210 feet

10. No wheel or crawler vehicles will operate within 45 feet of perennial and intermittent streams, except as required for road construction at stream crossings. Timber harvest and site preparation will maintain a minimum 45-foot wide strip of vegetation along stream channels to filter sediment and organic debris from disturbed areas.

11. Timber harvest will be designed to prevent an increase in runoff that is likely to result in stream channel degradation.

12. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trailheads.

13. Motorized vehicle use will be restricted to open roads and trails. Exceptions may be permitted for snowmobile use.

14. Seasonal or yearlong road closures will be permitted to achieve management goals for Management Area 3 or for adjacent management areas.

15. Management practices will follow guidelines for Visual Resource Management Class III or IV.

16. These lands may be available for exchange or sale depending upon their size and location. All proposals will be evaluated.

17. These lands may be available for consideration as utility corridors if compatible with management goals.

MANAGEMENT AREA 4: ELK SUMMER AND FALL HABITAT COMPONENTS

Description

Management Area 4 includes high density mappable portions of the resource area's elk summer and fall habitat components. It includes commercial forest, noncommercial forest, and nonforest lands containing components such as wallows, mineral licks, travel corridors, forage, and security areas in close proximity so that they tend to concentrate big game animals in a relatively small area. Although emphasis is on elk, other big game species will receive management consideration.

Management Goals

1. Maintain or improve elk summer and fall habitat components through specifically prescribed vegetative manipulation.

2. Provide elements of old-growth or mature timber for wildlife habitat in the immediate vicinity of elk summer and fall habitat components.

3. Manage riparian areas to maintain or enhance their value for wildlife, fisheries, aquatic habitat, recreation, watershed protection, and water quality.

4. Under the principles of sustained yield, manage suitable and available commercial forest land with operational restrictions that consider long-term requirements for elk summer and fall habitat components, including habitat conditions on adjoining lands.

5. Maintain site productivity, water quality, and stream stability.

Management Guidelines

1. Livestock grazing generally will be permitted and will be regulated to maintain or improve elk summer and fall habitat components.

2. Oil and gas leases will be issued with standard stipulations and special stipulations as needed.

3. Locatable minerals will be regulated by 3809 Regulations. Mining activity will be guided by management goals.

4. Riparian areas not designated Management Area 1 or Management Area 2 will be recognized in activity plans, and Best Management Practices for the protection of water quality and riparian features will be applied. The width of the riparian influence zone will be determined on a site-specific basis.

5. Timber management activities will be designed to maintain or improve elk summer and fall habitat components.

6. Noncommercial forest land may be considered for woodlands product harvest only when scheduled timber sales on adjacent commercial forest land provide an opportunity for sanitation or salvage, or when multiple use management goals require silvicultural treatment or habitat improvement to obtain desired stand structure and composition.

7. Firewood collection will be provided in timber sale areas, only when compatible with management goals.

8. Road location will avoid elk habitat components including wallows, licks, high use forage areas, and saddles used as travel routes wherever possible. Road right-of-way slash will be disposed of in such a way that it does not pose a travel barrier. Road right-of-way clearing will be kept to a minimum.

9. Duration of timber sale activity will be limited to as short a period as possible. Timber should be harvested, slash treated, and roads closed within two summer seasons. Additional timber sales will not be scheduled in or adjacent to Management Area 4 cutting units for five years following closure of a timber sale in the unit unless required to salvage mortality.

10. Security areas will be maintained adjacent to units where timber sales are scheduled as described in *Montana Cooperative Elk Logging Study* (USDA, FS 1982a) management recommendations (see Appendix S). Security areas should consist of adjacent drainages with acceptable cover quality in which no disturbance or timber sale activity is scheduled.

11. Harvest and thinning units will be 20 acres or less with irregular shapes or reserve blocks within units to increase edge effect and maintain proper sight distances. Reserve areas between treatment units will be a minimum of 600 feet wide. Timber harvest adjacent to past cutting units will be deferred until regeneration provides security cover with a minimum of 200 trees per acre eight feet high.

12. Slash disposal in cutting units will reduce average slash depths to less than 1.5 feet to reduce interference with forage use and travel.

13. Timber harvest will include varying proportions of shelterwood, seed tree, clearcuts, and selection methods.

14. Habitat components such as wallows, mineral licks, and forage and resting sites associated with mesic areas will be protected with a buffer strip in which sanitation and salvage or selection harvest maintaining a minimum 70 percent of existing or normal tree canopy is permitted. For planning purposes, the width of the buffer strip will be 200 feet from the perimeter of the feature or complex of features. For project activity, the buffered area (location) will be determined on the ground to take advantage of screening topography and vegetation, but not to exceed 300 feet width from the perimeter of the feature or complex of features. Cutting unit boundaries will be adjusted so that the feature is contiguous to forested security cover. Skidding equipment should not be permitted within 100 feet of the feature and logging debris should be removed from all trails leading to the feature.

15. Timber harvest will be designed to maintain or develop security cover adjacent to natural forage areas. Shelterwood or selection systems will generally be favored adjacent to one to five-acre parks, meadows, and grasslands; and intermediate treatments (thinnings) will be designed to maintain security cover. For parks, meadows, and grasslands over five acres, timber harvest units may remove cover from up to 25 percent of the park perimeter. The remainder of the perimeter will be maintained in existing cover until harvested portions return to security cover. Security cover on the upslope portions of parks is especially critical.

16. The resource area wildlife and forestry staff will review prescriptions, unit layout, and marking guides for effectiveness in providing security cover throughout the rotation.

17. Timber harvest along designated ridge tops, saddles, and draws used as travel routes by big game will be designed to maintain hiding or thermal cover 600 feet wide using predominantly shelterwood or selection systems along travel routes. Wherever possible cover should be continuous and not disruped by clearcut or seed tree units or roads.

18. Machine scarification will not be used in slopes over 40 percent or in the riparian buffer zones designated in Table A-2.

19. No wheel or crawler vehicles will operate within 45 feet of perennial and intermittent streams, except as required for road construction at stream crossings. Timber harvest will maintain a minimum 45-foot wide strip of undisturbed vegetation along stream channels to filter sediment and organic debris from disturbed areas.

20. Timber harvest will be designed to prevent an increase in runoff that is likely to result in stream channel degradation.

21. A variety of dispersed recreation activities are permitted and may be supported by existing trails and trailheads. New trail construction or relocation of existing trails will avoid this management area. Campgrounds and other recreation developments will not be constructed.

22. Motorized vehicle use will be restricted to open roads and trails. Exceptions may be permitted for snowmobile use.

23. Existing mainline and spur roads will be closed seasonally or yearlong to motorized vehicle travel, except where checkerboard ownership patterns prevent unilateral closure of roads. In these cases, BLM will aggressively pursue the establishment of seasonal or yearlong cooperative road closures. Any new roads will also be closed seasonally or yearlong.

24. Management practices will follow the guidelines for Visual Resource Management Class III or IV.

25. These lands generally will remain in public ownership. However, exceptions may be permitted where exchanges would result in acquisition of lands with greater public values.

26. These lands will be avoidance areas for utility corridors.

MANAGEMENT AREA 5: BIG GAME SUMMER AND FALL RANGE

Description

Management Area 5 consists of commercial forest, noncommercial forest, and nonforest lands which are summer and fall ranges for big game, with emphasis on elk. This management area is applied where public lands are important elk summer and fall habitat.

Management Goals

1. Provide a beneficial arrangement of forage and cover for big game summer and fall range through timber management activities.

2. Under the principles of sustained yield, manage suitable and available commercial forest land with operational restrictions that consider the long-term requirements of big game summer and fall habitat, including habitat conditions on adjoining lands.

3. Provide for dispersed recreation opportunities, nongame wildlife habitat, and livestock use.

4. Maintain site productivity, water quality, and stream stability.

5. Provide elements of old-growth or mature forest for wildlife habitat in the immediate vicinity of big game summer habitat components.

Management Guidelines

1. Livestock grazing will generally be permitted and will be regulated to maintain summer range values.

2. Oil and gas leases will be issued with standard stipulations and special stipulations as needed.

3. Lands are generally available for locatable minerals and will be regulated by the 3809 Regulations. Mining activities will be guided by management goals.

4. Riparian areas not designated Management Area 1 or Management Area 2 will be recognized in activity plans, and Best Management Practices for the protection of water quality and riparian features will be applied. The width of the riparian influence zone will be determined on a site-specific basis.

5. Timber management activities will be designed to maintain or improve big game summer and fall habitat.

6. Noncommercial forest land may be considered for wood product harvest only when scheduled timber sales on adjacent commercial forest land provide an opportunity for sanitation or salvage, or when multiple use management goals require silvicultural treatment or habitat improvement to obtain desired stand structure and composition.

7. Firewood collection opportunities will be authorized in timber sale areas. Authorizations may be restricted as needed to achieve management goals.

8. Duration of timber sale activity will be limited to as short a period as possible. Timber should be harvested, slash treated, and roads closed within a maximum of three summer seasons.

9. Big game habitat components such as wallows, mineral licks, and foraging or resting sites will be protected with a buffer strip in which sanitation and salvage or selection harvest maintaining a minimum 70 percent of existing or normal tree canopy is permitted. For planning purposes the width of the buffer strip will be mapped as 200 feet from the perimeter of the components. For project activity, the buffer strip width may vary, depending on the effectiveness of vegetative and topographic screens, but will not exceed 300 feet. Cutting unit boundaries will be adjusted so that the component is contiguous to forested security cover. Skidding equipment should not be permitted within 100 feet of the component, and logging debris should be removed from all trails leading to the component.

10. Timber harvest will be designed to maintain or develop security cover adjacent to natural big game forage areas. Shelterwood or selection systems will generally be favored adjacent to one to five-acre parks, meadows, and grasslands; and intermediate treatments (thinnings) will be designed to maintain security cover. For parks, meadows, and grasslands over 5 acres timber harvest will remove cover from no more than 40 percent of the park perimeter. The remainder of the perimeter will be maintained in existing cover until harvested portions return to security cover. Security cover on the upslope portions of parks is especially critical. The resource area wildlife and forestry staff will review prescriptions, cutting unit layout, and marking guides for effectiveness in providing security cover throughout the rotation.

Security areas will be maintained adjacent to units where timber sales are scheduled as described in *Montana Cooperative Elk Logging Study* (USDA, FS 1982a) management recommendations. Security areas should consist of adjacent drainages with acceptable cover quality in which no disturbance or timber sale activity is scheduled.

11. Slash disposal in cutting units will reduce average slash depths to less than 1.5 feet to reduce interference with big game forage use and travel.

12. Timber harvest will include varying proportions of clearcut, seed tree, and shelterwood systems, depending on stand and site conditions and silvicultural objectives.

13. In order to optimize cover effectiveness harvest and thinning units will generally be irregular in shape at 20 to 40 acres. Reserve areas between treatment units will be a minimum of 600 feet wide. Timber harvest adjacent to past harvest units will be deferred until regeneration on harvest units constitute security cover with a minimum of 200 trees per acre eight feet high.

14. Timber harvest along designated ridge tops, saddles, and draws used as travel routes by big game will be designed to maintain hiding or thermal cover

600 feet wide using predominantly shelterwood systems along travel routes. Wherever possible cover should be continuous and not disrupted by clearcut or seed tree units or roads.

15. Machine scarification will not be used on slopes over 40 percent or in the riparian buffer zones designated in Table A-2.

16. No wheel or crawler vehicles will operate within 45 feet of perennial and intermittent streams, except as required for road construction at stream crossings. Timber harvest will maintain a minimum 45-foot wide strip of undisturbed vegetation along stream channels to filter sediment and organic debris from disturbed areas. Timber harvest will be designed to prevent an increase in runoff that is likely to result in stream channel degradation.

17. Road location will avoid habitat components including wallows, licks, high use forage areas, and saddles used as big game travel routes wherever possible. Road right-of-way slash will be disposed of in such a way that it does not pose a barrier to big game travel. Road right-of-way clearing will be kept to the minimum required. Roads will be located and designed to reduce barriers to big game travel.

18. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trailheads. Campgrounds and other recreation developments will not be constructed.

19. Motorized vehicle use will be restricted to open roads and trails. Exceptions may be permitted for winter snowmobile use.

20. Generally roads will be closed seasonally or yearlong to motorized vehicle travel, except where checkerboard ownership patterns prevent unilateral closure of roads. In these cases, BLM will aggressively pursue the establishment of seasonal or yearlong cooperative road closures.

21. Management practices will follow the guidelines for Visual Resource Management Class III or IV.

22. Generally, these lands will remain in public ownership.

23. These lands may be available for consideration as utility corridors if compatible with management goals.

MANAGEMENT AREA 6: BIG GAME WINTER RANGE

Description

Management Area 6 consists of commercial forest, noncommercial forest, and nonforest lands which are winter ranges for deer, elk, or bighorn sheep. These lands will be managed to attain a balance of winter cover and forage for big game through timber management activities.

Management Goals

1. Enhance forage production and cover for deer, elk, or bighorn sheep on winter range.

2. Under the principles of sustained yield, manage suitable and available commercial forest land with operational restrictions for the maintenance or improvement of big game winter range.

3. Maintain site productivity, water quality, and stream stability.

4. Provide for dispersed recreation opportunities, nongame wildlife habitat, and livestock use.

Management Guidelines

1. Livestock grazing generally will be permitted and regulated to maintain sufficient forage to meet big game needs.

2. Oil and gas leases will be issued with standard stipulations and special stipulations as needed.

3. Locatable minerals will be regulated by 3809 Regulations. Mining activities will be guided by management goals.

4. Riparian areas not designated Management Area 1 or Management Area 2 will be recognized in activity plans; and Best Management Practices for the protection of water quality and riparian features will be applied. The width of the riparian influence zone will be determined on a site-specific basis.

5. Timber management activities will be designed to maintain or improve big game winter range.

6. Noncommercial forest land may be considered for woodlands product harvest only when scheduled timber sales on adjacent commercial forest land provide an opportunity for sanitation or salvage, or when multiple use management goals require silvicultural treatment or habitat improvement to obtain desired stand structure and composition.

7. Firewood collection opportunities will be authorized in timber sale areas. Authorization may be restricted as needed to achieve management goals.

8. Timber sale contracts will prohibit most sale activity during the winter and spring seasons to prevent disturbance of animals on winter range. Where winter logging is desirable, the activity must be compatible with big game winter habitat requirements.

9. Timber harvest will be designed to prevent runoff increases likely to result in stream channel degradation.

10. Duration of timber sale activity should be limited to as short a period as possible. Timber will be harvested, slash treated, and roads closed within two summer seasons in timber sale units.

11. Machine scarification will not be used on slopes over 40 percent or in the riparian buffer zones designated in Table A-2.

12. No wheel or crawler vehicles will operate within 45 feet of perennial and intermittent streams, except as required for road construction at stream crossings. Timber harvest will maintain a minimum 45-foot wide strip of undisturbed vegetation along stream channels to filter sediment and organic debris from disturbed areas.

13. Timber sale units and thermal or security cover areas will generally be 20 to 30 acres in size. Unit shapes will be irregular with reserve blocks within harvest units where necessary to increase edge effect and maintain proper sight distances. Reserve areas between harvest units will be as wide as the harvest units or a minimum of 600 feet wide. Timber harvest adjacent to past harvest units will be deferred until harvest units constitute security cover with a minimum of 200 trees per acre 8 feet high.

14. Cover areas will be managed to maximize thermal cover (70+ percent forest canopy cover, minimum 40 feet dominant canopy height, preferably two-storied) with the remainder in security cover. Thermal cover should be provided on both low and high energy aspects adjacent to forage areas.

15. Timber harvest will be designed to maintain or develop thermal cover adjacent to natural big game forage areas. Shelterwood or selection systems will generally be favored adjacent to one to five-acre parks, meadows, and grasslands and intermediate treatments (thinnings) will be designed to develop or maintain thermal cover. For parks, meadows, and grasslands over 5 acres, timber harvest may remove cover from up to 25 percent of the park perimeter. The remainder of the perimeter will be maintained in existing cover until harvested portions return to thermal cover. The resource area wildlife and forestry staff will review prescriptions, unit layout, and marking guides for effectiveness in providing thermal cover throughout the rotation.

16. Silvicultural systems will include varying proportions of clearcut, seed tree, shelterwood, group selection, and single tree selection methods.

17. Road right-of-way slash will be disposed of in such a way that it does not pose a barrier to big game travel. Slash disposal in cutting units will reduce average slash depths to less than 1.5 feet to reduce interference with big game forage use and travel.

18. A variety of dispersed summer and fall recreation activities are permitted and may be supported by construction of trails and trailheads. Winter recreation activity will be permitted where it does not conflict with wintering big game.

19. Motorized vehicle use will be restricted to open roads and trails unless closed under the terms of Guideline 18.

20. Generally, roads will be evaluated for seasonal or yearlong closure to motorized vehicle travel, except where checkerboard ownership patterns prevent unilateral closure of roads. In these cases, BLM may aggressively pursue the establishment of seasonal and yearlong cooperative road closures.

21. Management practices will follow the guidelines for Visual Resource Management Class III or IV, except in visually sensitive corridors identified in the Resource Management Plan.

22. These lands generally will remain in public ownership. However, exceptions may be permitted where exchanges would result in acquisition of lands with greater public values.

23. Available for consideration as utility corridor if compatible with management goals.

MANAGEMENT AREA 7: NONCOMMERCIAL FOREST AND TPCC WITHDRAWN COMMERCIAL FOREST

Description

Management Area 7 includes noncommercial forest land as well as commercial forest land withdrawn from the timber production base as a result of Timber Production Capability Classification (see Appendix C). These areas may include cliffs, caves, rock outcrops, talus, and old-growth timber.

Management Goals

1. Maintain site productivity, water quality, and stream stability.

2. Provide for the harvest of wood products from noncommercial forest and timber production capability classification withdrawn commercial forest while maintaining or enhancing other woodland resource values.

3. Maintain old-growth, mature forest, and unique features for wildlife habitat.

4. Provide opportunities for a variety of dispersed recreation activities.

Management Guidelines

1. Livestock grazing will generally be permitted and may be regulated.

2. Oil and gas leases will be issued with standard stipulations and special stipulations as needed.

3. Lands are generally available for locatable minerals and will be regulated by the 3809 Regulations. Mining activities will be guided by management goals.

4. Management practices to maintain or improve wildlife habitat will be permitted.

5. Riparian areas not designated Management Area 1 or Management Area 2 will be recognized in activity plans and will be given consideration for the protection of water quality and riparian features. The width of the riparian influence zone will be determined on a site-specific basis.

6. Noncommercial forest land may be considered for wood product harvest only when scheduled timber sales on adjacent commercial forest land provide an opportunity for sanitation or salvage, or when multiple use management goals require silvicultural treatment or habitat improvement to obtain desired stand structure and composition.

7. Firewood collection opportunities may be available, but will be limited by the absence of scheduled timber sales.

8. Construction of roads to access other management areas will be avoided if possible. Road construction in riparian zones will be avoided except where required to cross streams.

9. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trailheads.

10. Motorized vehicle use will be restricted to open roads and trails. Exceptions may be permitted for snowmobile use.

11. Seasonal or yearlong road closures will be permitted to achieve management goals for Management Area 7 or for adjacent management areas.

12. This area will be managed to meet the visual quality objective of Visual Resource Management Class II or III. Temporary departures from this visual quality objective may be acceptable when long-term visual values require such an action or essential road access into other management areas is impossible without this temporary departure. Visual quality rehabilitation measures will be taken where the visual quality objective is not being met.

13. These lands may be available for exchange or sale. All proposals will be evaluated.

14. These lands may be available for consideration as utility corridors if compatible with management goals.

MANAGEMENT AREA 8: AREAS RECOMMENDED FOR WILDERNESS DESIGNATION

Description

Management Area 8 consists of portions of the resource area that are being recommended for wilderness designation. Each such area has been evaluated or studied under either Section 202 or 603 of the Federal Land Policy and Management Act. Wilderness recommendations are based upon the wilderness review of the Wilderness Study Areas (WSAs) listed in Table A-3.

All WSAs currently are subject to the BLM's Interim Management Policy (IMP) and Guidelines for Lands under Wilderness Review. Upon completion of this RMP, the 202 WSAs that are not recommended for wilderness classification will be released from the IMP constraints. All other WSAs will be subject to the IMP until Congress reviews the agency's recommendations. If any or all of these WSAs are not recommended suitable for wilderness, the area will be managed under the direction of one or more of the other management area prescriptions. These are identified in the map packet which accompanies this document.

Management Goals

Manage in accordance with the Wilderness Act of 1964 and USDI BLM Wilderness Management Policy. These include the following basic concepts: preserve wilderness character in an unimpaired condition, provide opportunities for public use and enjoyment, and allow nonconforming but accepted uses in a manner that will prevent unnecessary or undue degradation of wilderness character.

Management Guidelines

1. Following wilderness classification by Congress, a wilderness management plan will be written for each area and incorporated into the Garnet Resource Management Plan.

2. Livestock grazing, where already established, will be permitted to continue subject to the BLM wilderness management policy and grazing regulations (43 CFR 4100). Grazing systems and management practices will conform to BLM wilderness management policy.

3. Issuance of new oil and gas leases will be prohibited.

4. Subject to valid rights existing on December 31, 1983, mining will be prohibited and the area withdrawn from all forms of appropriation under the mining laws. Mining operations permitted because of valid existing rights must be based upon an approved plan of operations and will be regulated under 43 CFR 3802 and the BLM Wilderness Management Policy.

5. Mineral material permits will not be issued.

TABLE A-3
WILDERNESS STUDY AREAS

Number	Name	Size	Study Authority
MT074-150	Wales Creek WSA	11,580 acres	(Section 603)
MT074-151A	Hoodoo Mountain WSA	11,380 acres	(Section 603)
MT074-151B	Gallagher Creek 202 WSA	4,257 acres	(Section 202)
MT074-155	Quigg West 202 WSA	520 acres	(Section 202)

6. Herbicides and insecticides generally will not be used.

7. Fire management and control actions will be consistent with the BLM Wilderness Management Policy.

8. Commercial forest land is unavailable for timber production and is withdrawn from the sustained yield timber production base.

9. Noncommercial forest land is unavailable for wood product harvest.

10. Firewood collection is prohibited unless for incidental use associated with camping.

11. Visitor use will be managed to a level compatible with the wilderness resource to prevent loss of solitude or unacceptable depreciation of the wilderness qualities.

12. Trail construction may be permitted and will be accomplished with minimal disturbance of the natural environment.

13. Facilities and structures may be constructed to insure the protection of the wilderness values; however, facilities may not be constructed to provide convenience to recreationists.

14. Off-road vehicle use will not be permitted.

15. Management practices will follow the guidelines for the preservation of Visual Resource Management Class I, except for modifications caused by the operation of natural processes.

16. These lands will remain in public ownership.

17. These lands are unavailable for utility corridor development or facility siting.

MANAGEMENT AREA 9: SPECIAL MANAGEMENT AREAS

Description

Management Area 9 consists of land distinguished by special, unique, or natural characteristics which require some form of special management and include Areas of Critical Environmental Concern.

Management Goals

1. Goals for each area will depend on the special and unique features or values within that particular area.

2. Ultimate disposition for each area will maintain, enhance, or restore site productivity, water quality, and stream stability.

Management Guidelines

1. Livestock grazing generally will be permitted to continue where already established.

2. Oil and gas leases will be issued with standard stipulations and special stipulations as needed.

3. Locatable minerals will be regulated by 3809 Regulations. Mining activities will be guided by management goals.

4. Components of this management area may be evaluated for withdrawal from mineral entry.

5. Mineral material permits are not allowed where inconsistent with management goals.

6. Wildlife and fish habitat improvement projects may be permitted if consistent with management goals.

7. Commercial forest land is set aside.

8. Firewood collection will not be authorized unless consistent with management goals.

9. Roads will not be constructed for surface land management purposes unless needed to meet specific management goals. Roads will be permitted for mineral activities where construction is justified on the basis of mineral showings or data and where it is the next logical step in development of the mineral resource.

10. Developed recreation facilities, including campgrounds or picnic grounds, will not be constructed unless consistent with the primary goals of the area.

11. Trails and trailheads may be constructed or improved to increase accessibility, enhance dispersed recreation, and protect other resource values, if consistent with the goals of each special management area.

12. This area will generally be closed to motorized vehicle use. Exceptions may be permitted for snowmobile use.

13. Road closures may be possible, depending upon management objectives.

14. Management practices will follow guidelines for applicable Visual Resource Management Class.

15. Generally, these lands will remain in public ownership.

16. These lands will be avoidance areas for utility corridors.

MANAGEMENT AREA 10: DEVELOPED AND UNDEVELOPED RECREATION SITES

Description

Management Area 10 consists of existing and potential recreation use areas located throughout the resource area with developed, minimal, or no developed facilities to support a wide range of recreation activities.

Management Goals

1. Maintain and enhance the present variety and quality of recreation sites to contribute to public enjoyment of the resource area.

2. Under the principles of sustained yield, manage suitable and available commercial forest land with operational restrictions to maintain or improve recreational opportunities and scenic quality.

3. Maintain site productivity, water quality, and stream stability.

Management Guidelines

1. Livestock grazing generally will be permitted. However there may be areas where grazing will not be permitted in order to meet management goals.

2. Oil and gas leases will be issued with standard stipulations and special stipulations as needed.

3. Generally, these lands are available for mineral location. Locatable minerals will be regulated by the 3809 Regulations. Mining activities will be guided by management goals.

4. Mineral material permits will generally not be issued.

5. Fire will not be used as a management tool in developed recreation sites.

6. Riparian areas not designated Management Area 1 or Management Area 2 will be recognized in activity plans, and Best Management Practices for the protection of water quality and riparian features will be applied. The width of the riparian influence zone will be determined on a site-specific basis.

7. Timber management activities will be designed to maintain or improve recreation opportunities and scenic quality.

8. Noncommercial forest land is available for wood product harvest on an unregulated basis. Generally, harvest will only occur when scheduled timber sales on adjacent commercial forest land provide an opportunity for sanitation or salvage, or when recreation and visual management goals require silvicultural treatment to obtain desired stand structure and composition.

9. Firewood collection will not be authorized unless compatible with management goals.

10. Complete disposal of thinning or timber harvest slash will be required to maintain scenic quality and recreation opportunities.

11. Roads may be constructed as necessary to meet management goals.

12. Recreation developments may be permitted.

13. Management practices will follow guidelines for Visual Resource Management Class II or III.

14. Motorized vehicle use is restricted to open roads and trails. Exceptions may be permitted for snowmobile use.

15. These lands generally will remain in public ownership. However, exceptions may be permitted where exchanges would result in acquisition of lands with greater public values or when lands can be better managed by another agency.

16. These lands will be avoidance areas for utility corridors.

MANAGEMENT AREA 11: HISTORICAL AND CULTURAL SITES

Description

Management Area 11 consists of scattered sites within or adjacent to BLM-administered lands that are protected because of historical and cultural significance. These include Garnet, Coloma, Reynolds City, Copper Cliff, Blackfoot City, Beartown, Bearmouth, and other sites that are eligible for the National Register of Historic Places.

Management Goal

Insure that eligible historical and cultural sites are preserved and protected.

Management Guidelines

1. Livestock grazing generally will be permitted where compatible with maintaining historical values. However, there may be areas where grazing will not be permitted in order to meet management goals.

2. Oil and gas leases will be issued with standard stipulations and special stipulations as needed.

3. Withdrawals from mineral entry will be sought for these sites. Locatable minerals, where not withdrawn, will be regulated by 3809 Regulations. Mining activities will be guided by management goals.

4. Mineral material permits will not be issued.

5. Fire will not be used as a management tool.

6. Commercial forest land is set aside.

7. Noncommercial forest land is unavailable for wood product harvest.

8. Firewood collection will not be authorized unless compatible with management goals.

9. Road and trail construction will be permitted to provide public access and interpretive facilities to the extent that the historical and cultural values are not compromised.

10. Recreation will be limited to day use activities, unless provided for in special site direction. Recreation development is permitted, as necessary, for site protection and interpretation.

11. This area will generally be closed to motorized vehicle use. Exceptions may be permitted for snowmobile use.

12. Management practices will follow guidelines for retention and partial retention under Visual Resource Management Classes II and III. Areas where the visual quality objective is not being met will be rehabilitated.

13. Fire suppression methods will be selected to minimize or eliminate the impact on historical site values.

14. These lands generally will remain in public ownership. However, exceptions may be permitted where exchanges would result in acquisition of lands with greater public values or when lands can be better managed by another agency.

15. These lands will be avoidance areas for utility corridors.

MANAGEMENT AREA 12: VISUAL CORRIDOR

Description

Management Area 12 consists of lands with high visual sensitivity that are available for varying degrees of resource management. These lands are generally foreground and middle ground viewing areas from major travel and recreation corridors.

Management Goals

1. Maintain or improve visual quality for highly sensitive, scenic areas.

2. Under the principles of sustained yield, manage suitable and available commercial forest land with operational restrictions to maintain or improve visual qualities.

3. Provide for dispersed recreational use opportunities, wildlife habitat, and livestock use within the constraints of Goal 1.

4. Maintain site productivity, water quality, and stream stability.

Management Guidelines

1. Mitigation measures will be designed to protect the values associated with the highly sensitive areas as part of the environmental analysis process for projects within the foreground viewing area.

2. Livestock grazing generally will be permitted.

3. Oil and gas leases will be issued with standard stipulations and special stipulations as needed.

4. Locatable minerals will be regulated by 3809 Regulations. Mining activities will be guided by management goals.

5. Mineral material permits will be considered on a case-by-case basis and may be issued if consistent with visual quality objectives.

6. Wildfire suppression methods that maintain visual quality will be selected whenever possible.

7. Prescribed burning will be permitted to the extent consistent with visual quality objectives.

8. Range and wildlife improvements are generally allowed. To the extent possible they should blend with the natural surroundings and follow natural breaks.

9. Riparian areas not designated Management Area 1 or Management Area 2 will be recognized in activity plans, and Best Management Practices for the protection of water quality and riparian features will be applied. The width of the riparian influence zone will be determined on a site-specific basis.

10. Timber management activities will be designed to maintain or improve visual qualities.

11. Noncommercial forest land may be considered for wood product harvest only when scheduled timber sales on adjacent commercial forest land provide an opportunity for sanitation or salvage, or when multiple use management goals require silvicultural treatment or habitat improvement to obtain desired stand structure and composition.

12. Firewood collection generally will be authorized. Authorization may be restricted as needed to achieve management goals.

13. Roads shall be concealed by vegetation, if possible, and follow natural landforms. Cut and fill areas will be kept to a minimum.

14. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trailheads.

15. Motorized vehicle use will be restricted to open roads and trails. Exceptions may be permitted for snowmobile use.

16. Seasonal or yearlong road closures will be permitted to achieve management goals for Management Area 12 or for adjacent management areas.

17. Management practices will follow the guidelines for Visual Resource Management Class II or III.

18. These lands may be available for exchange or sale. All proposals will be evaluated.

19. These lands may be available for consideration as utility corridors if compatible with management goals.

MANAGEMENT AREA 13: NONFOREST HABITAT

Description

Management Area 13 is a grassland and shrubland complex with minor inclusions of forest. It includes wet meadows, dry parks, and open grassland and shrubland varying in size from a few to several hundred acres. These lands provide high wildlife and livestock forage values.

Management Goals

1. Manage nonforest habitat to maintain or enhance forage for livestock and wildlife.

2. Maintain or enhance adjoining timber stands for wildlife cover.

3. Maintain site productivity, water quality, and stream stability.

4. Provide opportunities for a variety of dispersed recreation activities in a natural setting.

Management Guidelines

1. Livestock grazing will generally be permitted. Where wildlife habitat is important, grazing will be regulated to maintain sufficient forage to meet established big game needs.

2. Oil and gas leases will be issued with standard stipulations.

3. These areas will be available for mineral production and will be regulated by 3809 Regulations. Mining activities will be guided by management goals.

4. Prescribed burning may be used to accomplish wildlife habitat and livestock forage objectives.

5. Riparian areas not designated Management Area 1 or Management Area 2 will be recognized in activity plans, and Best Management Practices for the protection of water quality and riparian features will be applied. The width of the riparian influence zone will be determined on a site-specific basis.

6. Generally, any forest inclusions in this management area are unsuitable and unavailable for timber production and are not included in the sustained yield timber production base.

7. Firewood collection opportunities generally will not be available on nonforest land.

8. Emphasis will be placed on locating roads away from meadows and parks.

9. A variety of dispersed recreation activities are permitted and may be supported by construction of trails and trailheads. Seasonal restrictions on dispersed recreation may be required to achieve wildlife management objectives.

10. Motorized vehicle use is restricted to open roads and trails. Exceptions may be permitted for snowmobile use.

11. Seasonal or yearlong road closures will be permitted to achieve management goals for Management Area 13 or adjacent management areas.

12. Management practices will follow guidelines for Visual Resource Management Class III or IV, except in visually sensitive areas identified in the Resource Management Plan.

13. These lands may be included in the full range of land tenure possibilities. All proposals will be evaluated.

14. These lands may be available for consideration as utility corridors if compatible with management goals.

MANAGEMENT AREA 14: MINERAL PRODUCTION AREA

Description

Management Area 14 consists of active or recently active mineral extraction and processing operations and the immediate surrounding vicinity. Total acreages in this management area will fluctuate as other mining operations are identified or old operations are reclaimed.

Management Goals

1. Manage or utilize other resources to a degree compatible with mineral production.

2. Restore water quality and rehabilitate site productivity and stream stability through reclamation.

Management Guidelines

1. Livestock grazing will be permitted, if consistent with management goals.

2. Oil and gas leases will be issued with standard stipulations.

3. A Notice or Plan of Operations for proposed mining activities covered under 3809 Regulations will be developed. Mining activities will be guided by management goals.

4. Mining activities will be monitored for success in meeting State of Montana water quality standards.

5. Commercial forest land is set aside. These acres may be returned to the commercial forest land base when mining operations are completed.

6. Noncommercial forest land is available for wood product harvest.

7. Firewood collection generally will be allowed.

8. Dispersed recreation uses will be allowed.

9. Seasonal or yearlong road closures will be permitted to achieve management goals for adjacent management areas. Access will be available to mining claimants.

10. Management practices will follow guidelines for Visual Resource Management Class V.

11. These lands generally will remain in public ownership, unless mineral values warrant patenting.

12. These lands may be available for consideration as utility corridors.

APPENDIX B
BEST MANAGEMENT PRACTICES

The following Best Management Practices (BMPs) are adapted from the Montana Statewide 208 study. In general, these BMPs are designed to avoid or reduce nonpoint sources of water pollution resulting from forest management practices and similar activities.

ROAD SYSTEM

Road locations, particularly in sensitive areas, should be evaluated by the area engineer, soil scientist, wildlife biologist, and others as needed. Fit location to the topography to minimize cut and fill situations. In areas of important big game habitat, consultation with the wildlife biologist will be necessary to reduce location impact on ridgelines, saddles, and upper drainage heads.

Where alternative road locations are not possible, incorporate mitigative measures into plans.

Maintain streambank vegetation when crossing streams. Avoid stream crossings if possible; otherwise, minimize approach cuts and fills and channel disturbance.

Do not locate stream crossings strictly on where road grade indicates. Choose a stable site and adjust grade to it, when possible.

Keep stream disturbance to an absolute minimum.

If necessary, include short road segments with steeper grades, consistent with traffic needs and safety, to avoid problem areas or to take advantage of terrain features.

For timber harvest roads, take advantage of natural landing areas (flatter, better drained, open areas) to reduce soil disturbance associated with log landings and temporary work roads.

Vary road grades where possible to reduce concentrated flow in road drainage ditches and to reduce erosion on road surfaces.

Design drainage ditches, water bars, culvert placement, etc. in such a way as to disperse runoff and minimize cut and fill erosion.

Install culverts frequently enough to avoid accumulations of water that will cause erosion of road ditches and the area below the culvert outlet.

Seed (e.g., revegetate) cuts and fills the first fall season following disturbance.

Deposit excess material in stable locations well above the high water level and never into stream channel. Do not allow any material, including sidecast soil, stumps, logs, or other material to be deposited into a stream.

Plan ditch gradients steep enough (generally greater than 2 percent) to prevent sediment deposition.

When installing culverts, avoid changes in channel orientation and place culverts to conform to the natural channel gradient. Design culverts for maximum stream flow (e.g., 25 year discharge, etc.).

Skew culverts 30 degrees toward the inflow to provide better inlet efficiency.

Provide rock or other splash basins at the outlet end of culverts.

In some areas, alternating inslope and outslope sections can be built into the road especially if road grades are rolled to dispose of road surface flow.

Obtain all necessary permits for stream crossings before beginning activities.

Maintain roads immediately after logging and whenever necessary by cleaning ditch lines, blading debris from empty landings, trimming damaged culvert ends and cleaning out culvert openings. Culverts, cross drains, and dips should be cleaned regularly to assure proper functioning, especially before winter or expected rainy seasons. Debris should be removed from live drainages upstream from the inlet.

Grade the road surface as often as necessary to retain the original surface drainage (either insloped or outsloped). Take care to avoid sidecasting graded material over the fill slope. Carefully monitor surface drainage during wet periods and close the road if necessary to avoid undue damage. Restore surfacing on the road tread and in the road ditch if necessary following damage caused by operation in wet periods.

Haul all excess material removed by maintenance operations to safe disposal areas. Apply stabilization measures on disposal sites if necessary to assure that erosion and sedimentation do not occur.

Use the steepest slopes possible on cut and fill slopes commensurate with the strength of the soil and bedrock material as established by an engineering geologist or other specialist in soil mechanics. Benching cut slopes in areas of weak or erodible bedrock (e.g., weathered granites) into a series of properly drained terraces provides opportunity for vegetative establishment and may even require less excavation.

Control roadside brush only to the extent required for good road maintenance.

SILVICULTURAL

Avoid logging across any stream supporting resident fish or on any stream where a downstream water system might be affected.

Time logging activities for the season in which soil damage can be kept to acceptable limits.

Design and locate skid trail and skidding operations to avoid across ridge and across drainage operation.

Avoid yarding in stream channels.

Install water bars on skid trails when logging is finished (soil scientist and/or engineer will provide assistance as requested and/or needed).

Avoid trapping and turning small streams out of their natural beds in tractor trails and landings.

Deposit excess materials from landings and skid trails in such locations that it will not get cut or be washed into streams.

If debris should enter any stream, such debris shall be removed concurrently with the yarding operation and before removal of equipment from the project site. Removal of debris shall be accomplished in such a way that natural streambed conditions and streambank vegetation are not disturbed.

Provide appropriate width buffer strips adjacent to perennial and intermittent streams, springs, and wet meadows.

CHEMICALS HANDLING

Chemicals applied to forest lands should not include direct applications to water bodies. Suitable buffer strips should be provided. Weather and runoff conditions should be considered.

During mixing and disposal of chemicals, entry of chemicals into drainages should be prevented.

Selective, nonpersistent pesticides should be favored whenever possible.

Prevent deposition of fertilizers in water bodies or drainage ways, particularly during aerial application.

Existing Montana regulations regarding use of chemicals should be strictly adhered to regarding mixing, application, and disposal.

APPENDIX C

TIMBER PRODUCTION CAPABILITY CLASSIFICATION

The Timber Production Capability Classification (TPCC) system is a method of evaluating which forest lands are suitable to produce timber on a sustained yield basis. There are three major classes of land: nonforest, noncommercial forest, and commercial forest. The commercial forest land is separated into three types: fragile sites, problem reforestation sites, and nonproblem sites.

NONFOREST LANDS

The nonforest lands are characterized by bunchgrass and wet meadow grasslands, brush fields, and strip mine areas. The sites are not capable of at least 16.7 percent stocking by commercial species. These sites are not included in the sustained yield timber production base.

NONCOMMERCIAL FOREST LANDS

The noncommercial forest lands are divided into three types: noncommercial species sites, low sites, and conflicting rock sites.

Noncommercial Species Sites (NT-W)

The noncommercial species sites are not capable of producing 20 cubic feet/acre/year of commercial tree species. They are dominated by hardwoods or juniper. These sites are withdrawn from the sustained yield timber production base.

Low Sites (LS-W)

The low sites are not capable of producing 20 cubic feet/acre/year of commercial tree species at culmination of mean annual increment. These sites are generally on south or west aspects with 20 to 60 percent slopes and skeletal soils. Common habitat types are 100 series, 210, 220, 230, 311, and 321 (USDA, FS 1977). Full stocking is generally 40 to 90 percent of normal stocking. Low sites are withdrawn from the sustained yield timber production base.

Conflicting Rock Sites (CR-W)

Conflicting rock sites have exposed rock that prohibits timber management activities by restricting or prohibiting the operation of conventional logging equipment. The location and orientation of the rock is more important than ground coverage. Talus or rock outcrops covering an excess of 50 percent of the site or rock shelves traversing slopes would be considered conflicting rock. These sites are withdrawn from the sustained yield timber production base.

COMMERCIAL FOREST LANDS

Fragile Sites

Slope Gradient Restriction (FG-R)

Timber harvest in areas with slopes in excess of 60 percent should limit soil disturbance through use of skyline cable or aerial yarding. Road locations are likely to be constrained by topography and type of yarding system.

Groundwater Restriction (FW-R)

Groundwater is a factor in areas with saturation within 60 inches of the soil surface or mottling within 36 inches of the surface. These conditions commonly occur in riparian areas and habitat types 630 and 650 (USDA, FS 1977) on slopes or benches. They are often associated with seasonal standing water or marsh type vegetation. These conditions indicate that regeneration harvest methods should be restricted to shelterwood or selection types avoiding complete removal of vegetation. Roads will probably require special drainage design and surfacing, and may be limited or prohibited within this area. Machine traffic may be limited to frozen or snow covered ground.

Mass Failure Restriction (FM-R)

Mass failure is a factor in areas with visible evidence of slumps, slides, or flows. These commonly occur on slopes from 30 to 70 percent in Tertiary volcanics, Tertiary sedimentary rock, siltstones of the Amsden Formation, and argillites of the McNamara Formation. In these areas, regeneration harvest methods should generally be restricted to shelterwood or selection systems on slopes over 40 percent. Roads should avoid these areas wherever possible. Road location and design should avoid intercepting and concentrating slope drainage, undercutting toe slopes of earthflows or slumps, and loading the heads of slumps with road fill. Special drainage and prompt seeding of disturbed soils may reduce slope failure.

Shallow Soil Restriction (FS1-R)

Shallow soils are a factor where soil depth to bedrock is less than 20 inches. This commonly occurs on slopes in excess of 30 percent. Talus or scree on 50 percent or more of the area also indicates shallow soils. Silvicultural systems, site preparation, and slash disposal should be designed to minimize exposure and disturbance of the mineral soil.

Erosive Soil Restriction (FS2-R)

Erosive soils are a factor where soils with granitic parent materials occur on slopes greater than 15 percent, where soils have more than 35 percent clay and occur on slopes over 30 percent, and where other soils occur on slopes over 70 percent. Silvicultural systems, site preparation, and slash disposal should be designed to minimize exposure of mineral soil. Prompt seeding and water barring should follow soil disturbance on skid trails and landings. Roads will require additional drainage and stabilization.

Soil Compaction Restriction (FS3-R)

Silt, silt loam, and loam soils with 27 to 35 percent clay and less than 25 percent coarse fragments in the soil horizons within 10 inches of the surface are prone to soil compaction. Machine traffic may be limited on these soils to periods when the soil is dry or snow covered. Slopes in excess of 30 percent should be yarded by cable or aerial methods.

Problem Reforestation Sites

Heat and Drought Sites (RH1-R)

These sites are warm and dry on south and west aspects with slopes between 20 and 60 percent, or on ridge tops. They are characterized by skeletal and shallow soils with common habitat types of 100 series, 210, 220, 230, 262, 311, and 321. Other habitat types may be present: 312, 323, and 324 (USDA, FS 1977).

These sites generally should use regeneration harvest methods such as shelterwood or selection systems with natural regeneration. Site preparation should maintain 10 to 15 tons/acre of down woody material over 6 inches in diameter to provide dead shade. Plans for allowable cut should use a 30 year regeneration lag period and anticipate reduced yields due to the increased regeneration lag period. Underplanting may be used with shelterwood or selection systems where natural seed sources are not adequate to provide natural regeneration.

Heat and Drought Sites (RH2-R)

These sites are moderately warm and dry on south and west aspects with slopes between 10 to 40 percent at elevations generally greater than 5,400 feet. They are characterized by habitat types 261, 280, 312, 323, 324, 330, and 690 (USDA, FS 1977).

These sites generally should use regeneration harvest methods such as shelterwood or selection systems with natural and artificial regeneration. Site preparation guidelines should address problems due to grass, sedge, and forb competition. A normal regeneration lag period of 15 years is anticipated. Underplanting should be used with shelterwood and selection systems where natural seed sources are not adequate to provide prompt natural regeneration.

Inadequate Moisture Sites (RM-R)

These sites occur on north and east aspects on 20 to 60 percent slopes with skeletal and shallow soils. Habitat types include 261, 280, 312, and 323 (USDA, FS 1977). Full stocking is 50 to 80 percent of normal yield table stocking. Competing vegetation, primarily grasses and sedges, present serious reforestation problems.

These sites generally should use regeneration harvest methods favoring natural regeneration. Site preparation guidelines should address problems due to grass, sedge, and forb competition. A normal regeneration lag period of 15 years is anticipated. Underplanting should be used with shelterwood systems where natural seed sources are not adequate to provide prompt natural revegetation.

Heat and Drought Sites (RH-W)

These are sites that meet criteria for Heat and Drought Sites (RH1-R). However, they are stands of CFL that are understocked or nonstocked with commercial species and are not expected to regenerate naturally within 30 years. They include some stands that are fully stocked but present reforestation problems and are isolated from other CFL.

Excessive Water Sites (RW-R)

These sites have heavy clay soils with well developed profiles and claypans. They are commonly found on north and east aspects or drainage bottoms. The habitat types include 630 and 650 (USDA, FS 1977).

Silvicultural prescriptions should emphasize natural regeneration. Machine traffic should be restricted to dry or frozen soils.

Excessive Water Sites (FW-RW-W)

These sites have permanent or seasonal standing water, which tends to retard the reforestation of commercial species. These sites are commonly found near rivers, streams, or wet meadows. They are withdrawn from the sustained yield timber production base.

Frost Sites (RF-R)

These sites are in depressions or benches on north or east aspects where topography tends to pool cool air. Habitat types include 250, 623, and 640 (USDA, FS 1977). Silt and silt loam soil texture are common, and the presence of higher elevation species at lower elevations may be an indicator.

Selection of species and stock for planting should recognize the potential for frost damage to seedlings and frost heaving. Silviculture systems, unit layout, and site preparation should be designed to reduce pooling of cool air.

Competing Vegetation and Sod Sites (CG1-R)

Other TPCC classifications take priority over this classification but may have the same site preparation problems described here. These problems are due to grass, sedge, and forb competition. The understory of these sites are dominated or potentially may be dominated by rhizomatous grasses and sedges such as pine grass or elk sedge. Habitat types include 312, 322, 323, and 324 (USDA, FS 1977).

These sites generally should use regeneration harvest methods such as shelterwood or selection systems; adequate regeneration should be well established before the final overstory is removed. Sites, where natural regeneration is inadequate three years following the regeneration harvest, should be scheduled for planting. Where planting is scheduled but cannot be done for more than two years following harvest, site preparation should be delayed and only the fuel reduced. Extensive hand scalping, machine scarification, or herbicide use prior to planting is anticipated.

Competing Brush Vegetation Sites (CG2-R)

These sites are dominated by menziesia, alder, willow, or ninebark brush on north and east aspects in drainage bottoms or on concave slopes. Site preparation to allow seedling establishment will be done by prescribed burning, herbicides, or mechanical scarification.

Nonproblem Forest Sites

Commercial forest land that does not classify in any of the previously mentioned categories may be carried in the sustained yield timber production land base. These areas are not expected to require any special techniques to protect the basic timber growing potential and should provide prompt regeneration.

APPENDIX D

PROCESSING NOTICES AND PLANS OF OPERATIONS UNDER THE 3809 REGULATIONS

The regulations for surface management of public lands under the U. S. mining laws (43 CFR 3809) require all operators on public lands to notify the BLM of proposed exploration or mining activities. If the proposed activities would cause surface disturbance of five acres or less per year, a written notice or letter must be provided at least fifteen days before starting work. An approved plan of operations is required prior to beginning operations which would disturb more than five acres of public land per year. An approved plan of operations is also required for any operation, except casual use, within designated Areas of Critical Environmental Concern, areas designated as part of the National Wilderness Preservation System, and areas designated as closed to motorized vehicle use. The standard procedures used in processing notices and plans of operations are summarized below.

PROCESSING A NOTICE

Although no special form or format is necessary in developing a notice, the operator is required to submit certain information to the appropriate BLM District Office under 43 CFR 3809.1-3(c). To assist the operator in meeting these requirements, a form (Figure D-1) is available for use by the operator in developing a notice.

Notices received by the BLM typically are processed according to the steps listed in Table D-1.

TABLE D-1

STEPS IN PROCESSING A NOTICE OF PLANNED MINING ACTIVITIES

Responsible Officer	Step	Action
Mineral Specialist District/Area	1.	Confirms that operations under a notice will not disturb in excess of five acres during the calendar year. Reviews the notice to ensure that the operator has submitted all the information required under 43 CFR 3809.1-3(c). Determines if unnecessary or undue degradation would result from the proposed operation. Determines if consultation with the operator is desired when construction of access routes with inside cuts in excess of three feet are proposed.
	2.	Notifies the operator of deficiencies (if any) in the filing and requests the needed information. Reminds the operator that operations shall not commence until 15 days after the notice requirements have been met. If the notice is in order and meets the requirements as specified in 43 CFR 3809.1-3, the case file is forwarded to the appropriate Area Manager with findings of review.
Area Manager	3.	Reviews the notice and determines if additional staff assistance is needed. Cultural, paleontological, and endangered species inventories are not required under a notice. However, if known cultural or paleontological resources may be impacted by the proposed activities, the operator must be informed of the potential problem. In such a case, the regulations as described in 43 CFR 3809.2-2(e)(2) shall be emphasized.
District/Area Mineral Specialist	4.	Prepares letter acknowledging receipt of the submitted notice and states that the notice is in order and complete.
District/Area Mineral Specialist and/or Compliance Specialist	5.	Completes a minimum of one compliance inspection of each notice. Determines if the operation is causing unnecessary or undue degradation of the lands and notifies the operator and Area Manager of such findings. Documents all inspections and places the findings in the case file.

FIGURE D-1

NOTICE
43 CFR 3809
(Disturbance of Five Acres or Less)

Surface Management of Public Lands
Under the U.S. Mining Laws

No form necessary by the following format may be of assistance.

Timing: Written notification of planned mineral activities shall be made to the appropriate BLM Districct Office at least 15 days before starting work.

District: ☐ Butte ☐ Lewistown ☐ Miles City (see attached map)

Operator/Mining Claimant

Name: ____________________

Mailing Address: ____________________ Telephone: ____________

____

Local Contact: ____________________ Telephone: ____________

Mining Claims

Name ____________________ BLM Serial No. ____________

Name ____________________ BLM Serial No. ____________

Name ____________________ BLM Serial No. ____________

No Mining Claims Involved

Location

Twp. ________ , Rge. ________ , Sec. ________ (A map also would be helpful)

Date Operations Will Start ____________________

Duration of Activities ____________________

____

Type of Operation ____________________

____

____

____

____

____

____

Describe the proposed activities and their location in sufficient detail to locate the activities on the ground. Attach extra pages or a map when necessary.

Access

☐ On existing roads (description and location)

☐ Road to be contructed (location and type of equipment to be used.)

(A map also would be helpful.)

Check if:

☐ Construction of access will involve cuts of 3 feet or more on the inside edge.

I hereby declare that I, or persons I have authorized to do so, will complete reclamation of all disturbed sites during the course of my operations to the standards described in 43 CFR 3809.1-3(d) and that all reasonable measures will be taken to prevent unnecessary or undue degradation of the federal lands during operations.

Note: You must notify the District Manager of when reclamation has been completed (43 CFR 3809.1-3e).

Signature of claimant or operator

Date

PROCESSING A PLAN OF OPERATIONS

Although no special form or format is necessary in developing a plan of operations, the operator is required to submit certain information to the appropriate BLM District Office (43 CFR 3809.1-5). To assist the operator in meeting these requirements, an outline (Figure D-2) is available for use by the operator in developing a plan.

In processing plans or modification of plans, special consideration is given to those operations necessary for timely compliance with requirements of federal or state laws (such as assessment work). Pending final approval of the plan, the District Manager shall approve any operations necessary for timely compliance with those requirements, subject to terms and conditions needed to prevent unnecessary or undue degradation.

In processing a plan, the steps listed in Table D-2 typically are followed.

TABLE D-2

STEPS IN PROCESSING A PLAN OF OPERATIONS

Responsible Officer	Step	Action
Mineral Specialist District/Area	1.	Promptly acknowledges receipt of the plan of operations.
	2.	Reviews and determines if the plan meets the requirements as specified in 43 CFR 3809.1-5. If the plan is found to be deficient, notifies the operator of the deficiencies and requests the needed information. If the plan is in order and meets the requirements of 43 CFR 3809.1-5 the case file is forwarded to the appropriate Area Manager for further processing.
Area Manager	3.	Reviews the plan of operations and determines if additional staff assistance is needed in preparation of the environmental assessment.
	4.	Requests input from the staff archaeologist and wildlife biologist concerning cultural resources and endangered species.
District/Area Mineral Specialist, Staff Specialists, Environmental Coordinator	5.	Completes and forwards to the Area Manager the environmental assessment and other appropriate field investigation, inventories, and reports, including recommendations on bond requirements.
Area Manager	6.	Provides plan approval and bonding recommendations to District Manager. Recommends mitigating measures which reflect and correct an identified action (or lack of action) and are required to prevent identified unnecessary or undue degradation of lands. If no unnecessary or undue degradation of the lands would occur as proposed in the submitted plan of operations, then no further mitigating measures may be applied to the plan.

Responsible Officer	Step	Action
District Manager	7.	Within 30 days of receipt of a plan of operations, the District Manager must notify the operator that: (a) The plan is approved; or (b) The proposed action (or lack of action) would cause unnecessary or undue degradation of the lands, and identified additions or modifications of the plan are necessary before the plan can be approved; or (c) An additional, specified amount of time, not to exceed an additional 60 days, is needed to complete the review of the submitted plan. (The only reason that would justify additional time is substantial public interest expressed in the plan. The additional time is needed to consider public comments on the environmental assessment. Also, days during which the area of operations is inaccessible for inspection shall not be counted when computing the additional 60 day period); or (d) The plan cannot be approved until 30 days after a final environmental statement has been prepared and filed with the Environmental Protection Agency; or (e) The plan cannot be approved until the Bureau has complied with Section 106 of the National Historic Preservation Act or Section 7 of the Endangered Species Act.
	8.	If the plan of operations is not approved, assures that all necessary actions, as described in Steps 2-5 above, are completed and documented. The only justification for rejection of a plan of operations is the unavoidable or unmitigable conflict with an endangered species.
District/Area Mineral Specialist and/or Compliance Specialist	9.	Completes a minimum of one compliance inspection on each approved plan. Determines if the operation is causing unnecessary or undue degradation of the lands and notifies the Area Manager of such findings. Documents all inspections and places the findings in the case file.
	10.	When reclamation on part of the operation is completed and at the request of the operator, conducts a compliance inspection and documents the findings and places the findings in the case file. If reclamation has been satisfactorily completed, recommends to the Area Manager a reduction of bond, if appropriate. Upon completion of operations, conducts a final compliance inspection. If all necessary actions as described in the plan have been satisfactorily completed, recommends release of bond, if any, and closes case.

FIGURE D-2

OUTLINE FOR PLANS OF OPERATIONS SUBMITTED UNDER THE 43 CFR 3809 Regulations

I. Claimant Information

- A. Name
- B. Address
- C. Telephone Number

II. Operator Information (If different than claimant)

- A. Name
- B. Address
- C. Telephone Number

III. Mining Claim Information (If no claims locate, describe project area by township, range and section)

- A. Claim Name(s)
- B. Claim Type (Lode, Millsite, etc.)
- C. BLM Serial Number(s)
- D. Location of Claim(s) (Township, Range, Section)

IV. Proposed Operations

- A. Period of Operation (estimated beginning and completion dates)
- B. Access Routes (A description and location of existing access routes to be used and a description and location of any access routes to be contructed and the type of equipment to be used in their contruction)
- C. Existing Disturbance and Structures (A description and location of surface disturbances existing prior to January 1, 1981, structures, facilities, etc.)
- D. Proposed Operations (A description of the type of operations and how they will be conducted, including the locations and size of areas where surface disturbances, structures, facilities, etc., are proposed. Calculate the total acreage proposed for disturbance. One acre = 43,560 sq. ft.)

V. Proposed Reclamation

- A. Reclamation and Other Measure to Prevent Unnecessary or Undue Degradation (A description of the proposed reclamation procedures to reclaim disturbed areas resulting from the proposed operations, including the standards listed in section 3809.1-3 (d) of the surface management regulations, and other measures to be taken to prevent unnecessary or undue degradation of the lands).
- B. Extended Period of Nonoperation (A description of the measures to be taken during extended periods of nonoperation to maintain the area in a safe and clean manner and to reclaim the land to avoid erosion and other adverse impacts. If not filed at the time of plan submitted, this information is to be sumitted whenever an extended period of nonoperation is anticipated).

VI. Maps and/or Sketches

- A. Map/Sketch Requirements (A map, preferably a topographic map, or sketch showing surface disturbances existing prior to Janauary 1, 1981, structures, facilities, etc., and the locations and size of areas where surface disturbances are proposed, including existing and/or proposed routes of access, aircraft landing areas, etc.)

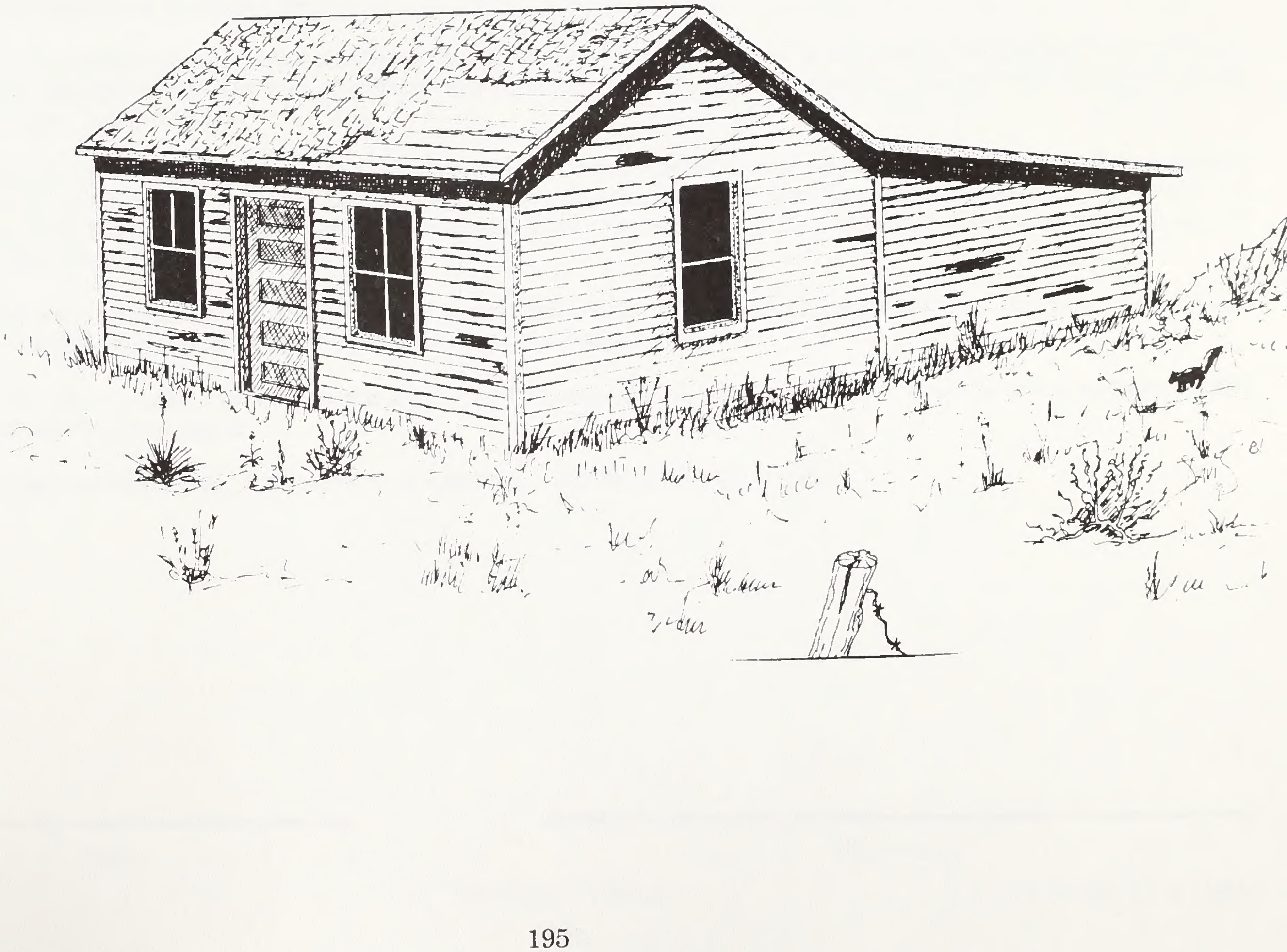
Notice to Operators

1. Approval of a submitted plan of operations is required from the BLM prior to commencing operations. The BLM will promptly ackowledge receipt of a submitted plan and will notify the operator of the status of the plan within 30 days of receipt of the plan.

2. Approval of a plan of operations does not constitute certification of ownership to any person named as owner of any listed mining claim, nor does approval constitute recognition of the validity of any mining claim named in an approved plan.

3. Generally, information that could be considered proprietary or confidential is not necessary to fulfill plan of operations requirements. However, information and data submitted and specifically identified by the operator as containing trade secrets or confidential or privileged commercial or financial information should be attached to a soparate page and cited in the text of the plan of operations. This information will be filed separately and will not be available for public inspection.

4. Failure of an operator to file a plan of operations, as required by the 43 CFR 3809 regulations, will subject the operator to being served a notice of noncompliance or enjoined from the continuation of such operations by a court order until such time as a plan is filed with the BLM.



APPENDIX E

OIL AND GAS LEASING PROCEDURES

PROCESSING OF LEASE APPLICATIONS

A lease application originates in the Montana State Office when a party applies for an oil and gas lease on a particular parcel of land. These are then either issued with the standard and controlled use stipulation (form MT-3109-1) directly from the Montana State Office or, in environmentally sensitive areas, are sent to the appropriate field office for review and special stipulations.

When the lease application is received by the resource area, it is reviewed by a wildlife biologist, recreation planner, soil scientist, and other specialists, as needed. As the lease is evaluated, it is assumed that the area will be developed and the impacts as described in the Butte District Oil and Gas EA will result from development.

Specialists reviewing a lease application will complete the Butte District Oil and Gas Leasing checklist and special stipulation form sheets, if necessary. After the checklist and resulting stipulations and rationale are completed, the lease application file is sent back to the Butte District Office for review. If the lease application involves Montana state lands or federal lands administered by other agencies, a copy may be sent to the appropriate agency for a 30-day review.

When the lease application has been completely reviewed, the Butte District's recommendation and all supporting documents are sent to the Montana State Office, where the lease is issued.

A copy of the Butte District Oil and Gas Leasing checklist, standard stipulation form MT-3109-1, and special stipulation forms MT-3109-2, MT-3109-3, MT-3109-4, and MT-3109-6 follow this section.

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management
222 North 32nd Street
P.O. Box 36800
Billings, Montana 59107

____
(Serial Number)

OIL AND GAS LEASE STIPULATIONS

ESTHETICS—To maintain esthetic values, all surface-disturbing activities, semipermanent and permanent facilities may require special design including location, painting and camouflage to blend with the natural surroundings and meet the intent of the visual quality objectives of the SMA.

EROSION CONTROL—Surface disturbing activities may be prohibited during muddy and/or wet soil periods. This limitation does not apply to operation and maintenance of producing wells using authorized roads.

CONTROLLED OR LIMITED SURFACE USE STIPULATION—This stipulation may be modified by special stipulations which are hereto attached or when specifically approved in writing by the Bureau of Land Management with concurrence of the SMA. Distances and/or time periods may be made less restrictive depending on the actual onground conditions. The prospective lessee should contact the SMA for more specific locations and information regarding the restrictive nature of this stipulation.

The lessee/operator is given notice that the lands within this lease may include special areas and that such areas may contain special values, may be needed for special purposes, or may require special attention to prevent damage to surface and/or other resources. Possible special areas are identified below. Any surface use or occupancy within such special areas will be strictly controlled, or **if absolutely necessary**, excluded. Use or occupancy will be restricted only when the Bureau of Land Management and/or the surface management agency demonstrates the restriction necessary for the protection of such special areas and existing or planned uses. Appropriate modifications to imposed restrictions will be made for the maintenance and operations of producing oil and gas wells.

After the SMA has been advised of specific proposed surface use or occupancy on the leased lands, and on request of the lessee/operator, the Agency will furnish further data on any special areas which may include:

> 100 feet from the edge of the rights-of-way from highways, designated county roads and appropriate federally-owned or controlled roads and recreation trails.
>
> 500 feet, or when necessary, within the 25-year flood plain from reservoirs, lakes, and ponds and intermittent, ephemeral or small perennial streams; 1,000 feet, or when necessary, within the 100-year flood plain from larger perennial streams, rivers, and domestic water supplies.
>
> 500 feet from grouse strutting grounds. Special care to avoid nesting areas associated with strutting grounds will be necessary during the period from March 1 to June 30. One-fourth mile from identified essential habitat of state and federal sensitive species. Crucial wildlife winter ranges during the period from December 1 to May 15, and in elk calving areas, during the period from May 1 to June 30.
>
> 300 feet from occupied buildings, developed recreational areas, undeveloped recreational areas receiving concentrated public use and sites eligible for or designated as National Register sites.
>
> Seasonal road closures, roads for special uses, specified roads during heavy traffic periods and on areas having restrictive off-road vehicle designations.
>
> On slopes over 30 percent, or 20 percent on extremely erodable or slumping soils.

_______________________ _______________________
(Date) (Signature)

See Notice On Back

MT-3109-1 (July 1984)

NOTICE

CULTURAL AND PALEONTOLOGICAL RESOURCES—The Federal Surface Management Agency (SMA) is responsible for assuring that the leased lands are examined to determine if cultural resources are present and to specify mitigation measures. Prior to undertaking any surface-disturbing activities on the lands covered by this lease, the lessee or operator, unless notified to the contrary by the SMA, shall:

1. Contact the appropriate SMA to determine if a site specific cultural resource inventory is required. If an inventory is required, then;

2. Engage the services of a cultural resource specialist acceptable to the SMA to conduct a cultural resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the area of proposed disturbance to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to be submitted to the SMA for review and approval no later than that time when an otherwise complete application for approval of drilling or subsequent surface disturbing operation is submitted.

3. Implement mitigation measures required by the SMA. Mitigation may include the relocation of proposed lease-related activities or other protective measures such as testing salvage and recordation. Where impacts to cultural resources cannot be mitigated to the satisfaction of the SMA, surface occupancy on that area must be prohibited.

The lessee or operator shall immediately bring to the attention of the SMA any cultural or paleontological resources discovered as a result of approved operations under this lease, and not disturb such discoveries until directed to proceed by the SMA.

ENDANGERED OR THREATENED SPECIES—The SMA is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species, listed or proposed for listing as endangered or threatened, or their habitats. The findings of this examination may result in some restrictions to the operator's plans or even disallow use and occupancy that would be in violation of the Endangered Species Act of 1973 by detrimentally affecting endangered or threatened species or their habitats.

The lessee/operator may, unless notified by the authorized officer of the SMA that the examination is not necessary, conduct the examination on the leased lands at his discretion and cost. This examination must be done by or under the supervision of a qualified resources specialist approved by the SMA. An acceptable report must be provided to the SMA identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats.

APPENDIX E

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management

____
(Serial Number)

SPECIAL OIL AND GAS LEASE STIPULATIONS

The following special stipulations may be modified when specifically approved in writing by the District Engineer, Minerals Management Service with concurrence of the Federal surface management agency.

(Only stipulations checked apply to this lease.)		(Approximate % of lease affected by stipulation.)
( )	No occupancy or other activity on the surface of the following-described land is allowed under this lease: Reasons for this restriction are:	( )
( )	No occupancy or other surface disturbance will be allowed within ____________ feet of the ________________________________	( )
( )	No drilling or storage facilities will be allowed within ____________ feet of ________________________________ located in ________________________________	( )
( )	No occupancy or other surface disturbance will be allowed on slopes in excess of ____________ percent.	( )
( )	In order to ________________________________ ________________________________ exploration, drilling, and other development activity will be allowed only during the period from ________________ to ________________ . This limitation does not apply to maintenance and operation of producing wells and facilities. Lands within the leased area to which this stipulation applies are described as follows:	( )
( )	The ________________________ will not be used as an access road for activities on this lease except as follows:	( )

________________ ________________________
Date Lessee's Signature

MT-3109-2 (April 1982)
Formerly MSO 3100-45

UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management

Serial No. ______________________

Oil & Gas Lease Stipulations

The following stipulations may be modified when specifically approved in writing by the District Engineer, U.S. Geological Survey with the concurrence of the authorized officer of the surface management agency.

No Surface Occupancy Stipulation

% of Lease

(   ) No occupancy or other activity on the surface of the following described lands is allowed under this lease: (   )

(a)

(b)

Reasons for this restriction are:
(a)
(b)

Surface Occupancy Restriction Stipulation (by location)

% of Lease

(   ) No ______________________________ will be allowed within: (   )

_____ feet of ______________________________ located within:

_____ feet of ______________________________ located within:

_____ feet of ______________________________ located within

_____ feet of ______________________________ located within:

This area contains approximately ______ total acres

Surface Occupancy Restriction Stipulation (timing)

% of Lease

(   ) (a) In order to (minimize) (protect) ______________________________ (   )
______________________ will be allowed only during: ______________

(b) In order to (minimize) (protect) ______________________________
______________________ will be allowed only during: ______________

This does not apply to maintenance and operation of producing wells and facilities. Lands within the leased area to which this stipulation applies are described as follows:
(a)

(b)

Road Use Stipulation

% of Lease

(   ) The ______________________________ (   )
will not be used as an access road for activities on this lease except as follows:

____
Date

____
Signature

MT-3109-3 (December 1981)
Formerly MSO 3100-55

United States Department of the Interior
Bureau of Land Management
Montana State Office

WILDERNESS PROTECTION STIPULATION

____
(Serial Number)

By accepting this lease, the lessee acknowledges that the lands contained in this lease are being inventoried or evaluated for their wilderness potential by the Bureau of Land Management (BLM) under section 603 of the Federal Land Policy and Management Act of 1976, 90 Stat. 2743 (43 USC Sec. 1782), and that exploration or production activities which are not in conformity with section 603 may never be permitted.

☐ All lands within the lease (% of lease affected)

☐ Part of the lands within the lease described as follows:

Expenditures in leases on which exploration drilling or production are not allowed will create no additional rights in the lease, and such leases will expire in accordance with law.

Activities will be permitted under the lease so long as BLM determines they will not impair wilderness suitability. This will be the case either until the BLM wilderness inventory process has resulted in a final wilderness inventory decision that an area lacks wilderness characteristics, or in the case of a wilderness study area until Congress has decided not to designate the lands included within this lease as wilderness. Activities will be considered nonimpairing if the BLM determines that they meet each of the following three criteria:

(a) It is temporary. This means that the use or activity may continue until the time when it must be terminated in order to meet the reclamation requirement of paragraphs (b) and (c) below. A temporary use that creates no new surface disturbance may continue unless Congress designates the area as wilderness, so long as it can easily and immediately be terminated at that time, if necessary to management of the area as wilderness.

(b) Any temporary impacts caused by the activity must, at a minimum, be capable of being reclaimed to a condition of being substantially unnoticeable in the wilderness study area (or inventory unit) as a whole by the time the Secretary of the Interior is scheduled to send his recommendations on that area to the President, and the operator will be required to reclaim the impacts to that standard by that date. If the wilderness study is postponed, the reclamation deadline will be extended accordingly. If the wilderness study is accelerated, the reclamation deadline will not be changed. A full schedule of wilderness studies will be developed by the Department upon completion of the intensive wilderness inventory. In the meantime, in areas not yet scheduled for wilderness study, the reclamation will be scheduled for completion within 4 years after approval of the activity. (Obviously, if and when the Interim Management Policy ceases to apply to an inventory unit dropped from wilderness review following a final wilderness inventory decision of the BLM State Director, the reclamation deadline previously specified will cease to apply.) The Secretary's schedule for transmitting his recommendations to the President will not be changed as a result of any unexpected inability to complete the reclamation by the specified date, and such inability will not constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness.

The reclamation will, to the extent practicable, be done while the activity is in progress. Reclamation will include the complete recontouring of all cuts and fills to blend with the natural topography, the replacement of topsoil, and the restoration of plant cover at least to the point where natural succession is occurring. Plant cover wil be restored by means of reseeding or replanting, using species previously occurring in the area. If necessary, irrigation will be required. The reclamation schedule will be based on conservative assumptions with regard to growing conditions, so as to ensure that the reclamation will be complete, and the impacts will be substantially unnoticeable in the area as a whole, by the time the Secretary is scheduled to send his recommendations to the President. ("Substantially unnoticeable" is defined in Appendix F of the **Interim Management Policy and Guidelines for Lands under Wilderness Review**.)

(c) When the activity is terminated, and after any needed reclamation is complete, the area's wilderness values must not have been degraded so far, compared with the area's values for other purposes, as to significantly constrain the Secretary's recommendation with respect to the area's suitability or nonsuitability for preservation as wilderness. The wilderness values to be considered are those mentioned in section 2(c) of the Wilderness Act, including naturalness, outstanding opportunities for solitude or for primitive and unconfined recreation, and ecological, geological or other features of scientific, educational, scenic, or historical value. If all or any part of the area included within the leasehold estate is formally designated by Congress as wilderness, exploration and development operations taking place or to take place on that part of the lease will remain subject to the requirements of this stipulation, except as modified by the Act of Congress designating the land as wilderness. If Congress does not specify in such act how existing leases like this one will be managed, then the provisions of the Wilderness Act of 1964 will apply, as implemented by rules and regulations promulgated by the Department of the Interior.

If it is found that the area does not have wilderness characteristics or is not suitable to be designated a part of the National Wilderness Preservation system, development and/or surface occupancy will be subject to the remaining lease terms and the special stipulations.

______________________ Date

______________________ Lessee's Signature

MT 3109-4 (December 1981)
Formerly MSO 3100-51

APPENDIX F

GUIDELINES FOR IMPLEMENTATION OF VRM CLASSES

CLASS I

This class provides primarily for natural ecological changes; however, it does not preclude very limited management activity. Any contrast created within the characteristic environment must not attract attention. This class is applied to wilderness areas, wilderness study areas, some natural areas, portions of the wild and scenic rivers, and other similar situations where management activities are to be restricted. All nonexempt resource management program actions that will modify the landform, waterbodies, vegetation, or structures will comply with required VRM contrast rating objectives. The contrast rating shall not exceed nine points when all mitigating measures have been applied, allowing a one year recovery period from project completion date.

CLASS II

Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. A contrast may be seen but should not attract attention.

Class II requires that management activities be designed and located to blend into the natural landscape and not be visually apparent to the casual visitor. A management activity may repeat the visual elements common in the characteristic landscape only if this repetition does not evidently change the essential quality of the existing dominance factors (e.g., pattern, intensity, amount).

Structures located in the foreground distance zone (0-1/2 mile) often create a contrast that exceeds the VRM class even when designed to harmonize and blend with the characteristic landscape. This may be especially true when a distinctive architectural motif or style is designed. Proposals will be reviewed on a case-by-case basis to determine whether such structure(s) meet the acceptable VRM class standards and, if not, whether they add acceptable visual variety to the landscape.

All nonexempt resource management program actions that will modify the landform and waterbodies, vegetation, and structures will comply with required VRM contrast rating directives. The following resource management guides shall apply.

Forest Management

Clearcuts must not be seen unless they simulate adjacent natural openings. No geometrical shapes are allowed.

Shelterwood cuts permitted, with a maximum cut of 60 percent to reduce modification of textural contrast with resulting openings that appear natural. If modifications of vegetative texture are made the contrast will be minimal.

Thinnings are acceptable if maximum cut does not exceed 40 percent. This is a modification of vegetative texture and the contrast will be minimal if stumps are cut flush with the ground and slash is removed from the first 400 feet within the foreground visual zones.

Roads must not be seen from major travel routes or recreation sites and must be designed to minimize cut and fill areas.

Range Management

Vegetative manipulation projects must appear as natural openings and shall follow existing breaks in vegetation and landform. There is no limit on size. Stockpiling of plant material will not be allowed.

Spring development will generally be allowed. Handwork may be required on some projects. Pipelines shall follow existing contours. Dozers will not drop blades to clear lines. Watering tanks will be painted to blend with surroundings.

Fence posts shall be natural in color with no white tops. Fences should follow natural breaks in vegetation and avoid straight lines (can be changed to green or red posts with white tops where wildlife conflicts occur).

Roads shall not be constructed but will be developed through vehicular use. Dozers will not drop blades.

Structures such as corrals and loading chutes will generally be allowed if constructed of wood and if no clearing is necessary.

Structures

Structures must incorporate the natural lines, colors, form, and materials of the landscape. Skylined structures will not be allowed from key observation points. Structures should take advantage of all opportunities for concealment.

Roads

Required roads shall be concealed by vegetation if possible, follow natural landforms, and be rehabilitated when the road is no longer needed. Cut and fill areas will be minimal and shall not exceed five feet.

Contrast Rating

All activities listed above as well as others (i.e., recreation, wildlife, access, etc.) will be subject to the contrast rating procedures. No project shall exceed ten points when all mitigating measures have been applied, allowing a two year recovery period from project completion date.

CLASS III

Contrasts to the basic elements (form, line, color, texture) caused by a management activity may be evident and begin to attract attention in the characteristic landscape. However, the changes should remain subordinate to the existing characteristic landscape.

This class provides that management activities may be evident to the casual visitor; however, the activity should remain subordinate to the visual strength and natural character of the landscape.

A management activity may repeat the dominant qualities common in the landscape and may visually change the essential character of existing dominance factors in the landscape. However, these changes must be relatively small in scale and generally subordinate to the visual strength of the natural landscape.

All nonexempt resource management program actions that will modify the landform and waterbodies, vegetation, and structures will comply with required contrast rating directives. The following resource management guides shall apply.

Forest Management

Clearcuts may be seen but must simulate typical natural openings. No geometric shapes are allowed.

Shelterwood cuts permitted, with a maximum initial entry cut of 60 percent to reduce modification of textural contrast. Resulting openings should appear natural.

Range Management

Vegetative manipulation projects must appear as natural openings. No limit on size.

Springs can be installed with equipment except in some instances where hand-tools will be necessary to protect the visual resource. Dozers will not drop blades to clear lines. Watering tanks will be located in areas that will screen them from major travel routes and key observation points.

Where possible, fences will not be constructed in long straight lines. No white topped posts are allowed (can be changed to red or green posts with white top where wildlife conflicts occur).

Roads shall not be constructed but will be developed through use and minimum work with a dozer blade to bypass obstacles. Dozers will not be used to construct roads to range developments unless they are absolutely necessary to install projects.

Structures

Structures should incorporate the natural lines, colors, and materials of the natural landscape.

Roads

Roads should be partially concealed by vegetation, follow natural landforms, and be seeded as soon as possible.

Contrast Rating

All activities listed above and others (i.e., recreation, cultural, lands, etc.) will be subject to the contrast rating procedures. All projects shall not exceed 16 points after all mitigating measures have been applied, allowing a five year recovery period from completion date.

CLASS IV

Contrasts may attract attention and be a dominant feature of the landscape in terms of scale; however, the change should repeat the basic elements (form, line, color, texture) inherent in the characteristic landscape.

Class IV provides that management activities may be visually apparent to the casual observer and may also become dominant in the landscape.

Establishment of strong visual linkages between the management activity and the characteristic landscape is critical to reduce visible impacts. When viewed as foreground or middleground, the management activity may be dominant but may not appear to completely borrow from natural established dominance factors. However, when viewed as background, the management activity must be those of natural occurrences within the characteristic landscape.

Management activities, which are visually apparent, may be located in critically sensitive areas such as prominent features, long view duration areas, enframed views, and other critical focus areas if such modifications are subjected to sensitive analysis by the recreation planner or other visual design arts specialists.

All nonexempt resource management program actions that will modify the landform and waterbodies, vegetation, and structures will comply with required contrast rating directives. The following resource management guides shall apply.

Forest Management

Clearcuts may be seen but must incorporate the nongeometric lines of the natural landscape. Shelterwoods can be of any size.

Range Management

Vegetative manipulation projects shall not be geometric in shape. New roads will follow natural contours.

Structures

Structures should incorporate the natural lines, colors, and form of the landscape (can be changed to allow the use of red or green fence posts with white tops where wildlife conflicts occur).

Roads

Roads should follow the natural landforms and be rehabilitated as soon as possible.

Contrast Rating

All of the activities listed above and others (i.e., recreation, operations, etc.) will be subject to the contrast rating procedures. All projects shall not exceed 20 points after all mitigating measures have been applied, allowing a five year recovery period from project completion date.

CLASS V

Change is needed or change may add acceptable visual variety to an area. This class applies to areas where the natural character has been disturbed to a point where rehabilitation is needed to bring it back into character with the surrounding landscape. This class would apply to areas identified in the scenic evaluation where the quality class has been reduced because of unacceptable cultural modification. The contrast is inharmonious with the characteristic landscape. It may also be applied to areas that have the potential for enhancement, i.e., add acceptable visual variety to an area/site. It should be considered an interim or short-term classification until one of the other VRM class objectives can be reached through rehabilitation or enhancement. The desired visual resource management class should be identified.

APPENDIX G

CULTURAL RESOURCE MANAGEMENT PROCEDURES

OBJECTIVE AND PURPOSES

The objective of the BLM cultural resource program is to manage cultural resources in a stewardship role for public benefit. The Department of the Interior has issued instructions setting forth this management structure through a use evaluation system. The purposes of the system are to analyze the scientific and sociocultural values of cultural resources to provide a basis for allocation of cultural resources, to make cultural resources an important part of the planning system, and to identify information needed when existing documentation is inadequate to support a reasonable cultural resource-based land use allocation.

EVALUATION CATEGORIES

The evaluation of cultural resources requires the consideration of actual or potential use of individual sites or properties within the following categories.

Sociocultural Use. This category refers to the use of an object (including flora and fauna), structure, or place based on a social or cultural group's perception that the item has utility in maintaining the group's heritage or existence.

Current Scientific Use. This category refers to a study or project in progress at the time of evaluation for which scientists or historians are using a cultural resource as a source of information that will contribute to the understanding of human behavior.

Management Use. This category refers to the use of a cultural resource by the BLM or other entities interested in the management of cultural resources to obtain specific information that is needed for the reasonable allocation of cultural resources or for the development of effective preservation measures.

Conservation for Future Use. This category refers to the management of cultural resources by segregating them from other forms of appropriation until specific conditions are met in the future. Such conditions may include the development of research techniques that are presently not available or the exhaustion of all other resources similar to those represented in the protected sample. The category is intended to provide long-term, onsite preservation and protection of select cultural resources.

Potential Scientific Use. This category refers to the potential use (utilizing research techniques currently available) of a cultural resource as a source of information that will contribute to the understanding of human behavior.

Discharged Use. This category refers to a cultural resource that no longer retains the integrity necessary for its management as a cultural property.

PROCEDURES

The standard form of cultural resource management practiced in the Garnet Resource Area is inventory and evaluation of cultural properties implemented in response to proposed projects that may adversely effect such properties. The procedures for such management are mandated and specified in the Antiquities Act of 1906; Executive Order 11593; the Archaeological and Historic Preservation Act of 1974; the Federal Land Policy and Management Act of 1976; the National Historic Preservation Act, amended 1980; and the Native American Religious Freedom Act of 1982. Standard operating and reporting procedures minimize the possibility of damage to significant cultural properties. The individuals and groups involved are the State Historic Preservation Officer (SHPO), appropriate Native American officials, and the National Advisory Council for Historic Preservation, which will be involved if a site is eligible for the National Register of Historic Places.

Upon receipt of a Request for Cultural Resources Survey Form at the Butte District Office, the project is screened by the District Archaeologist to determine if the project is exempt from a necessary cultural resources inventory through programmatic memorandum of understanding with SHPO. If exempt, no further work is done. If not exempt, a project specific Class II inventory is performed using the Butte District master file of sites and inventories maintained at that office. This file contains the results of all inventories, inventory class, and location of all cultural properties by site number. The characteristics of each property are maintained in a permanent file of cultural properties. Should the project area be previously inventoried and no significant resources recorded, no further work is necessary besides reporting to SHPO; and the project proceeds.

If the area is previously unrecorded or contains a significant property, further work is necessary. Prior to field work, historic documents are consulted and the predictive modeling system applied as a project specific inventory review to determine the presence or predictive value of classes of cultural properties. Based upon this project specific inventory review, consultation with SHPO is made to determine the inventory strategy to be employed.

The typical inventory strategy in the Garnet Resource Area is the intensive Class III survey of all impact areas. For timber compartment management plans, only proposed cutting units, landings, and access roads are inventoried to Class III levels, with Class II survey given to areas within the compartment but outside impact areas. Thus, while a timber compartment management plan inventory will lead to the recordation of properties within impact areas, such inventories will seldom if ever record all properties within a compartment.

Cultural resource properties that are encountered are recorded on a modified form 8110-2, evaluated, and assigned a use allocation. Evaluation is generally made on the general surface characteristics of the site and limited historical review in concert with procedures of the Montana State Office of the BLM. Only those properties that clearly do not meet National Register criteria are assigned the discharged use allocation, with management use assigned to moderate value properties which require further evaluation and possible reallocation of use. Sites potentially eligible for the National Register are assigned other use allocations depending on site characteristics and type.

Copies of form 8110-2 are filed at the Butte District office; the University of Montana; and, as appropriate, SHPO. Inventory reports are recorded on MSO form 8110-1 and filed with the Butte District office, the Garnet Resource Area office, and SHPO. These inventory reports summarize management recommendations and fulfill cultural resource consultation requirements. Upon receipt of MSO form 8110-1, SHPO consults and comments upon the proposed action, which usually is permitted to proceed at that point due to the standard practice of project redesign to avoid impact to significant cultural properties. Copies of the consultation and comment record with SHPO are filed with the Butte District office and at the Garnet Resource Area office and project file, as appropriate.

Should properties of potential significance under the Native American Religious Freedom Act be encountered during a cultural resources inventory, representatives of appropriate Native American groups are also notified for their consultation and comment.

Only in those cases where cultural properties eligible for nomination to the National Register of Historic Places or the National Register of Historic Landmarks cannot be avoided by a proposed project, or when there are differences in property significance assessment or inventory standards between the BLM and SHPO is the National Advisory Council for Historic Preservation and/or the keeper of the Register consulted for comments. At this point the project may be redesigned to avoid the property, mitigated to standards designed for a no adverse effect determination in consultation with the National Advisory Council and SHPO in a memorandum of understanding, or permitted to proceed as a BLM management decision.

To provide for consideration of cultural properties not evident during inventories, a stipulation is attached to each project requiring the operator to temporarily suspend work if buried cultural materials are encountered. The District Manager or his authorized representative will then determine the action necessary for protection or salvage of the property.

APPENDIX H

SUMMARY OF RESOURCE CONDITIONS USED TO CATEGORIZE GRAZING ALLOTMENTS

Specific criteria were developed to evaluate the management situation for each allotment and to highlight those allotments that may require a change in present grazing management in order to resolve conflicts in the use of resources. These criteria were based on current BLM policy (WO-IM 82-292) and evaluated range condition, its potential to respond to management changes, the current management situation, the presence of resource use conflicts or controversy, and the opportunities for positive economic return on public investment. Each criterion was rated independently by a cross section of resource specialists familiar with the allotment. Each specialist recommended placement of the allotment into one of three management categories. Finally, the ratings and recommendations were reviewed by the Area Manager who then determined how the allotment would be categorized. The management category for an allotment may be changed when resource conditions change or new data becomes available.

IMPROVEMENT MANAGEMENT

Improvement management allotments (I allotments) are areas where changes are needed. In I allotments one or more of the following specific criteria apply:

> Vegetative or watershed conditions are not satisfactory.
>
> The allotment has a high to moderate potential for production, but is producing below its potential.
>
> There are substantive conflicts with other resources.
>
> The allotments size and physical characteristics make management changes and range improvements cost effective.

MAINTENANCE MANAGEMENT

Maintenance management allotments (M allotments) are areas where changes are not needed. In M allotments one or more of the following specific criteria apply:

> Vegetative and watershed conditions are satisfactory.
>
> The allotment is covered by an existing AMP.
>
> The allotment has the potential for high resource production and is producing near its potential.
>
> There are no serious resource conflicts.
>
> The allotments size and physical characteristics would make management and range improvements cost effective.

CUSTODIAL MANAGEMENT

Custodial management allotments (C allotments) are areas where changes are not feasible. In C allotments one or more of the following specific criteria apply:

> The biological potential for response to a change in management is low.
>
> Management of the allotment would not be cost effective due to its size or potential productivity.
>
> The cost of the range improvements that would be needed to change grazing management exceeds the expected benefits.
>
> Little conflict, if any, exists in resource use.
>
> Overall resource values are relatively low.

SUMMARY TABLES

Table H-1 places each allotment into one of the three management categories and shows the natural resource factors that were used in the categorization process. Table H-2 summarizes the allotments by category.

TABLE H-2

SUMMARY OF ALLOTMENTS BY CATEGORY

Category	Number of Allotments	Total Acres	Percent	Total AUMs	Percent
I	11	47,589	43	1,373	23
M	23	51,295	47	3,553	60
C	50	11,385	10	1,004	17
Total	84	110,269	100	5,930	100

SUMMARY OF RESOURCE CONDITIONS USED TO CATEGORIZE ALLOTMENTS

Allot. No.	Allotment Name	Change Needed in Veg. Condition or Prod.	Potential of Veg. to Respond	Change Needed in Watershed Condition	Potential of Watershed to Respond	Change Needed in Wildlife Habitat Cond.
7101	Bonita-Clinton-Potomac	Some	Moderate	Some	Low	Some
7102	Weaver	Significant	Moderate	Some	Moderate	—
7104	Lund #1	Significant	Moderate	Some	Moderate	Significant
7105	McMahon	Significant	Low	Some	Low	—
7106	Iverson	—	Low	Some	Moderate	Some
7108	Lund #2	Some	Moderate	Some	Moderate	Some
7109	Semenza #1	—	—	Some	Moderate	—
7110	Shelley	—	—	—	—	—
7111	Joseph	—	—	—	—	—
7112	Bearmouth Land	Some	Moderate	—	—	—
7113	Henderson	—	—	—	—	—
7114	Enman	—	—	—	—	—
7115	Nelson	Some	Moderate	—	—	Some
7116	Lindberg	—	—	—	—	—
7118	Five Mile	Some	Moderate	Some	Moderate	—
7119	McElwain	Some	Moderate	Some	Moderate	—
7121	Wales	Some	Moderate	Some	Moderate	Some
7122	Koessler	—	—	—	—	—
7123	Lindburg Cattle Co.	—	—	Some	Moderate	—
7124	Snead	—	—	—	—	—
7201	Devil Mountain	—	—	—	—	—
7202	A. Beck	—	—	—	—	—
7203	D. Beck	Some	Moderate	Some	Moderate	—
7204	L. Beck	—	—	—	—	—
7205	Benson	—	—	—	—	—
7206	Gimlet	—	—	—	—	—
7207	Semenza #4	Some	Moderate	Some	Moderate	Some
7208	A. Coughlin	—	—	—	—	—
7209	Dingwall	—	—	—	—	—
7210	Dutton	—	—	—	—	—
7211	D. Graveley	—	—	—	—	—
7212	C. Graveley	—	—	—	Moderate	Some
7213	Marcum	Some	High	Some	Moderate	Some
7214	Hogan	—	—	—	—	—
7215	Hollenback	—	—	—	—	—
7216	Keiley	Some	High	Some	High	Some
7217	Lingenfelter	—	—	—	—	—
7218	McMcormick	—	—	—	—	—
7219	Mannix	Some	Moderate	Some	Moderate	—
7220	F. Mannix	—	—	—	Moderate	—
7221	Murphy	Some	Moderate	Some	Moderate	—

Table H-1

SUMMARY OF RESOURCE CONDITIONS USED TO CATEGORIZE ALLOTMENTS

Potential of Wildlife Habitat to Respond	Change Needed In Riparian Condition	Potential Of Riparian to Respond	Other Areas of Concern	Tentative Management Category
Moderate	Significant	Low	Forest regeneration, wildlife-big game winter/summer range.	I
—	Some	Moderate	Forest regeneration.	I
Moderate	Some	Moderate	Forest regeneration.	I
—	Some	Low	Forest regeneration.	I
Moderate	Some	Moderate	Forest regeneration.	I
Moderate	Some	Moderate	Forest regeneration.	I
—	Some	Moderate	Wildlife summer/fall habitat, forestry in future.	I
—	Some	Moderate		C
—	—	—		C
Low	—	—		C
—	—	—		C
—	—	—	Wildlife-big game winter range.	C
Moderate	—	—	Wildlife-big game winter range.	M
—	—	—		C
—	—	—	Forest regeneration.	M
—	Some	Moderate	Forest regeneration, wildlife-big game winter range.	M
Moderate	Some	Moderate	Wildlife-big game winter range.	M
—	—	—	Wildlife-big game winter range.	M
—	Some	Moderate	Wildlife-big game summer range, walk in hunting, moose range.	M
—	—	—		C
—	—	—	Wildlife-big game summer range, move from M to C category.	C
—	—	—		C
—	—	—		C
—	—	—		C
—	—	—		C
—	—	—		C
Moderate	Significant	Moderate	Wildlife-summer/fall elk habitat, forestry-reforestation, recreation-walk in hunting.	M
—	—	—		C
—	—	—		C
—	—	—		C
—	—	—		C
Low	Some	Moderate	Recreation historic site.	M
Moderate	Some	Moderate	Wildlife-big game winter range, recreation-walk in hunting area.	M
—	—	—		C
Moderate	—	—	Wildlife-big game winter range.	C
Moderate	Some	Moderate	Wildlife-big game winter range.	M
—	—	—		C
—	—	—	Wildlife-winter eagle roost area.	C
Moderate	Significant	Moderate	Wildlife-stream fisheries.	I
—	Some	Moderate	Forestry-reforestation area.	C
—	Some	Moderate		I

Allot. No.	Allotment Name	Change Needed in Veg. Condition or Prod.	Potential of Veg. to Respond	Change Needed in Watershed Condition	Potential of Watershed to Respond	Change Needed in Wildlife Habitat Cond.
7222	Semenza #2	—	—	—	—	Some
7223	Radtke #1	—	—	—	—	—
7224	Ward Paper	—	—	Some	Moderate	—
7225	W. Holers	—	—	—	—	—
7226	J. Weaver	—	—	—	—	—
7227	Hughes	—	—	—	—	—
7228	Henault	—	—	—	—	—
7229	Cochran	Some	Moderate	Some	Moderate	Some
7230	Geary	—	—	—	—	—
7231	Sunny Slope	—	—	—	—	—
7232	Gilman	Some	High	Some	Low	—
7301	Bauer	Some	Low	—	—	Some
7302	Bissonette	—	—	—	—	Some
7303	Strand	Some	Moderate	—	—	—
7304	Collins #1	—	—	—	—	—
7305	Gilles	—	—	—	—	—
7306	Vick	—	—	—	—	—
7307	W. Jensen	—	—	—	—	—
7308	Jensen Ranch #1	Some	Moderate	—	—	—
7309	Johnson	Some	Moderate	Some	Moderate	Some
7310	Morrison	—	—	—	—	—
7311	Lane	—	—	Some	Moderate	—
7312	H. Luthje	—	—	—	—	—
7313	J. Luthje	—	—	—	—	Some
7314	Neal #1	Some	Moderate	—	—	—
7315	Mungas	—	—	—	—	—
7316	Neal #2	Some	High	Some	Moderate	Some
7317	X Diamond	Significant	High	Some	Moderate	Significant
7318	Radtke #2	—	—	—	Moderate	Some
7319	West Fork Buttes	—	—	—	—	—
7320	Stewart Lake	—	—	—	—	—
7321	Sanders	—	—	—	—	—
7322	Flint Creek	—	—	—	—	—
7323	Jensen Ranch #2	Some	Moderate	Some	Moderate	Some
7324	Collins #2	Some	Moderate	—	—	Some
7325	Klobeck	—	—	—	—	—
7326	Spieker	—	—	—	—	—
7501	McGillvary	—	—	—	—	—
7504	McIntosh	—	—	—	—	—
7505	Deleo	—	—	—	—	—
7506	Rierson	—	—	—	—	—
7507	Mattice	—	—	—	—	—

Significant — Either a large part of the allotment or a key part is in unsatisfactory condition.
Some — Only a part of the allotment is in unsatisfactory condition.
— — No change is needed.

Potential of Wildlife Habitat to Respond	Change Needed In Riparian Condition	Potential Of Riparian to Respond	Other Areas of Concern	Tentative Management Category
Moderate	—	—	Wildlife-big game winter range.	C
—	—	—		C
—	Some	Moderate	Forestry-regeneration.	M
—	—	—		C
—	—	—		C
—	—	—		C
—	—	—	Wildlife-winter eagle roost area.	M
Moderate	—	—	Wildlife-big game winter range.	M
—	Some	Moderate	Wildlife-goose nest area.	C
—	—	—		C
—	Some	Low		C
Low	—	—		C
Moderate	—	—	Wildlife-big game winter range.	C
—	—	—	Wildlife-big game winter range.	M
—	Some	Moderate		C
—	—	—		C
—	—	—		C
—	—	—		C
—	—	—		C
Moderate	—	—	Wildlife-big game winter/spring range.	M
—	—	—		C
—	Some	Low		M
—	—	—	Forestry-reforestation, Coop USFS/BLM timber sale and range improvement area.	I
Low	—	—	Forestry-reforestation.	M
—	—	—		M
—	—	—		C
Moderate	Significant	Moderate	Forestry-reforestation, wildlife-big game winter range, recreation-walk in hunting.	M
Moderate	—	—	Wildlife-big game winter range.	C
Moderate	Some	Moderate	Forestry-reforestation, wildlife-moose winter/spring range.	C
—	Some	High	Wildlife-big game range.	M
—	—	—	Wildlife-elk calving and winter/spring range.	M
—	—	—	Wildlife-occasional bighorn sheep use.	C
—	—	—		C
Moderate	—	—	Wildlife-big game winter range.	M
Moderate	—	—	Wildlife-big game winter range, forestry-reforestation.	I
—	—	—		C
—	—	—		C
—	—	—		C
—	—	—		C
—	—	—		C
—	—	—		C
—	—	—		C

High — Site conditions are favorable for the resource to respond to treatment.
Moderate — Some site conditions are unfavorable for the resource to respond to treatment.
Low — Site conditions are unfavorable for the resource to respond.
— — The resource is already in a satisfactory condition.

I — Improvement allotment.
M — Maintenance allotment.
C — Custodial allotment.

APPENDIX I

ALTERNATIVE STOCKING RATES BY ALLOTMENT

The following table identifies alternative short-term targets and long-term estimates for livestock use by allotment.

Short-term Targets (STT) represent approximate levels of livestock use that are likely to be applied within the first ten years of plan implementation, based on current resource information. In effect, such targets are assumptions established for the purpose of impact analysis. Actual livestock use adjustments will be implemented through agreement or by decision and, in the case of decisions, will be based on operator consultation, range survey data, and monitoring of resource conditions.

Long-term Estimates (LTE) represent approximate levels of livestock use that are likely to be applied at the end of the second decade following plan implementation, based on anticipated changes in forage production and availability, and other resource conditions. Such estimates are projected for the purpose of comparing the long-term effects of alternative plans.

In arriving at the various AUM values, several sources of data were used. An estimate of proper stocking rate, based on SCS's *Montana Grazing Guides* (USDA, SCS 1977) and unpublished technical range site descriptions, was available for all allotments. Several range surveys conducted prior to 1978, covering a number of the allotments, were reviewed. Some of the allotments have been monitored for actual use and utilization in recent years. This data is normally a very sensitive estimate of carrying capacity. In some allotments, annual changes in livestock use have been applied for and approved at levels lower than Active Preference (nonuse) and at levels exceeding Active Preference (temporary nonrenewable use). Where these annual variances have been repeated over a period of three years or more, this information was considered in developing AUM figures.

Stocking levels for Alternatives C and D consider the tendency for cattle to concentrate in valleys and riparian areas. These areas receive greater use and tend to be the part of an allotment that is in poor or fair vegetative condition. The dry slopes receive less use and, therefore, tend to be in excellent and good condition. Reduced stocking levels reflect only the carrying capacity of the range in poor or fair condition and does not stock for the carrying capacity of the range in excellent, good, or logged condition classes. If it is feasible to fence livestock out of the range that is in poor and fair condition, the allotment is stocked for carrying capacity of the range in the excellent and good condition classes.

APPENDIX I

ALTERNATIVE STOCKING RATES BY ALLOTMENT
(All Units in AUMs)

		Alternative A		Alternative B		Alternative C		Alternative D		Alternative E	
Allot.	Allotment Name	STT	LTE	STT	LTE	STT	LTE	STT	LTE	STT	LTE
7101	Bonita-Clinton-Potomac	215	360	683	1,009	36	156	36	156	250	478
7102	F. Weaver	121	121	140	145	56	96	56	96	121	135
7104	Lund #1	145	181	281	311	20	31	20	31	181	249
7105	McMahon	37	37	89	100	6	11	6	11	37	46
7106	Iverson	44	60	81	158	42	61	42	61	55	90
7108	Lund #2	140	175	141	235	76	89	76	89	175	201
7109	Semenza #1	124	175	135	194	83	159	83	159	124	200
7110	Shelley	4	4	4	4	4	4	4	4	4	4
7111	Joseph	11	11	11	11	11	11	11	11	11	11
7112	Bearmouth Land	27	27	27	27	27	27	27	27	27	27
7113	Henderson	15	15	15	15	15	15	15	15	15	15
7114	Enman	26	26	26	26	26	26	26	26	26	26
7115	Nelson	113	123	162	175	113	113	113	113	136	142
7116	L. Lindbergh	2	2	2	2	2	2	2	2	2	2
7118	Five Mile	60	76	69	82	19	28	19	28	66	76
7119/7120	McElwain Common Allotment	140	196	399	509	24	34	24	34	175	258
7121	Wales	120	138	150	200	42	42	42	42	120	150
7122	Koessler	8	25	51	82	2	2	2	2	15	40
7123	Lindbergh Cattle Co.	101	126	172	255	56	79	56	79	101	154
7124	Snead	4	4	4	4	4	4	4	4	4	4
7201	Devil Mountain	64	102	144	200	61	80	61	80	64	128
7202	A. Beck	30	30	33	57	5	41	5	41	30	46
7203	D. Beck	84	84	94	111	50	50	50	50	50	102
7204	L. Beck	49	49	49	49	49	49	49	49	49	49
7205	Benson	27	27	36	47	24	24	24	24	27	27
7206	Gimlet	5	5	5	5	5	5	5	5	5	5
7207	Braziel Cr.	362	535	557	953	358	358	358	358	362	535
7208	Coughlin	1	1	1	1	1	1	1	1	1	1
7209	Dingwall	3	3	3	3	3	3	3	3	3	3
7210	Dutton Ranch	23	23	54	64	3	3	3	3	23	30
7211	Dan Graveley	6	6	7	10	6	6	6	6	6	6
7212	Cliff Graveley	110	110	114	170	41	47	41	47	110	130
7213	Marcum Mtn.	113	174	466	685	108	108	108	108	168	331
7214	Hogan	15	15	15	15	15	15	15	15	15	15
7215	Hollenback	10	10	10	10	10	10	10	10	10	10
7216	Keiley	40	56	56	73	40	51	40	51	40	73
7217	Lingenfelter	8	8	8	8	8	8	8	8	8	8
7218	McCormick	7	7	7	7	7	7	7	7	7	7
7219	Mannix Ranch	55	55	79	130	48	48	48	48	67	76
7220	F. Mannix	8	8	8	8	8	8	8	8	8	8
7221	Murphy	58	73	82	125	55	55	55	55	73	106
7222	Semenza #2	35	35	35	35	35	35	35	35	35	35
7223	Radtke #1	7	7	7	7	7	7	7	7	7	7
7224	Warm Spring Cr.	466	589	620	738	244	271	244	271	533	632
7225	Wohlers	6	6	6	6	6	6	6	6	6	6
7226	J. Weaver	35	35	35	35	35	35	35	35	35	35
7227	Hughes	22	22	22	22	22	22	22	22	22	22
7228	Henault/Foster	15	15	15	15	15	15	15	15	15	15
7229	Cochran Ranch	41	41	46	53	41	41	41	41	41	51
7230	Geary Bros.	5	5	5	5	5	5	5	5	5	5

Allot.	Allotment Name	Alternative A		Alternative B		Alternative C		Alternative D		Alternative E	
		STT	LTE	STT	LTE	STT	LTE	STT	LTE	STT	LTE
7231	Sunny Slope Grazing Assoc.	10	10	10	10	10	10	10	10	10	10
7232	Gilman	10	10	10	10	10	10	10	10	10	10
7301	Bauer	13	13	40	45	13	14	13	14	13	13
7302	Bissonette	20	20	22	26	20	20	20	20	20	20
7303	Strand	65	65	65	90	21	21	21	21	65	81
7304	Collins #1	42	52	42	52	10	10	10	10	42	52
7305	Gillies	8	8	8	8	8	8	8	8	8	8
7306	Vick	3	15	15	20	3	4	3	4	15	19
7307	Jensen	15	15	19	23	15	15	15	15	15	15
7308	Jensen Ranch Co. #1	56	56	56	56	56	56	56	56	56	56
7309	Johnson	164	174	174	179	161	161	161	161	164	174
7310	Morrison	25	25	25	25	25	25	25	25	25	25
7311	Lane	210	235	235	235	64	153	64	153	210	235
7312	H. Luthje	324	349	499	596	112	173	112	173	324	481
7313	J. Luthje	192	232	245	259	190	190	190	190	192	232
7314	R. Neal #1	216	216	216	251	40	62	40	62	216	251
7315	G. Mungas	22	22	34	40	22	22	22	22	22	22
7316	Ram Mtn.	398	398	473	576	77	87	77	87	398	398
7317	X Diamond Bar Ranch	25	25	25	25	25	25	25	25	25	25
7318	Radtke #2	33	33	35	36	33	33	33	33	33	33
7319	West Fork Buttes	140	140	197	197	137	137	137	137	140	182
7320	Stewart Lake	318	368	374	374	318	318	318	318	318	368
7321	L. Sanders	56	56	78	93	56	56	56	56	56	56
7322	Flint Cr. Land	34	34	34	34	34	34	34	34	34	34
7323	Jensen Ranch Co. #2	123	123	143	190	117	124	117	124	123	138
7324	Collins #2	110	138	158	176	95	116	95	116	110	132
7325	Kolbeck Ranches Inc.	6	6	6	6	6	6	6	6	6	6
7326	N. Spieker	16	16	16	16	16	16	16	16	16	16
7501	Wm. McGillvray	5	5	5	5	5	5	5	5	5	5
7504	W. McIntosh	20	20	20	20	20	20	20	20	20	20
7505	F. DeLeo	8	8	8	8	8	8	8	8	8	8
7506	S. Rierson	38	38	38	38	38	38	38	38	38	38
7507	J. Mattice	38	38	38	38	38	38	38	38	38	38
	Unleased Chamberlain Creek	0	0	54	57	0	0	0	0	0	0
	Unleased Cottonwood Creek	0	0	172	191	0	0	0	0	0	0
	Unleased Gallagher Creek	0	0	150	172	0	0	0	0	0	0
	Unleased Wales Cr.	0	0	117	183	0	0	0	0	0	0
	Unleased Yourname Creek	0	0	65	78	0	0	0	0	0	0
Total		5,930	6,981	9,211	11,662	3,595	4,232	3,595	4,232	6,245	8,013

AUM: Annual Unit Month
STT: Short-Term Target
LTE: Long-Term Estimate

APPENDIX J
RANGE IMPROVEMENTS AND TREATMENTS

The following is a discussion of typical design features and construction practices for range improvements and treatments. In addition, there are many special design features that can be made part of a project's design that are not specifically discussed in this appendix. One example of a special design feature would be the use of a specific color of fence post to blend with the surrounding environment and thereby mitigate some of the visual impact of the fence. These mitigating design features will be developed, if needed, for individual projects at the time an environmental assessment is written.

STRUCTURAL IMPROVEMENTS

Fences

Fences would be constructed to provide exterior allotment boundaries, divide allotments into pastures, protect streams, and control livestock. Most fences would be three or four wire with steel posts spaced 16.5 feet apart with intermediate wire stays. Jack legs would be used where steel posts are not practical. Proposed fence lines would not be bladed or scraped. Gates or cattleguards would be installed where fences cross existing roads.

Where fences may impair the movement of wildlife, they would be no more than forty-two inches in height with no stays, three or four strand with ten inch spacing between top and next lower wire, and the bottom wire at least sixteen inches above the ground. Where needed on key big game areas, the top wire would also be smooth. Existing fences that create wildlife movement problems would be modified. For any fences in wildlife migration areas, the need for let down fences to allow passage of wildlife would be analyzed. These fences would be let down when livestock are not present. The BLM would be responsible for management of these special purpose fences.

Spring Development

Springs would be developed or redeveloped using a backhoe to install a buried collection system, usually consisting of drain tile and a collection box. The collection box is normally made from a section of 24 to 42 inch metal culvert with a cover and a fitting to which a delivery pipe is connected. A short pipeline would be installed to deliver water to a trough for use by livestock and wildlife. Normally the spring area is fenced to exclude livestock.

Pipelines

Wherever possible, water pipelines would be buried. The trench would be excavated by a backhoe, ditchwitch, or similar equipment. Rigid plastic pipe would be placed in the trench, and the excavated material would be used to backfill. While some flexible pipe may be installed using a ripper tooth, this is not a preferred technique. Most pipelines would have water tanks spaced approximately one-half mile apart.

Wells

Well sites would be selected based on geologic reports that predict the depth to reliable aquifers. All applicable state laws and regulations that apply to the development of groundwater would be observed.

NONSTRUCTURAL IMPROVEMENTS

Burning

Burning is proposed to reduce the amount of big sagebrush and/or conifers on a site. Burning would normally be done during the spring months, April and May, or the fall months, September and October, depending on the specific prescription written for each area. Burn plans would be developed for each burn.

Plowing and Seeding

Most of the sites to be plowed and seeded are in poor or fair vegetative condition and have a low potential to improve under other management practices. Most of the existing vegetation would be eliminated during seedbed preparation, and the site would be seeded with species adapted to the area. The final selection of species to be seeded would depend on the planned use of the site and the management objectives for the allotment. Seed would be drilled wherever possible. The application of mulch and/or fertilizer would be prescribed based on site characteristics.

Interseeding

Interseeding differs from plowing and seeding in that the existing vegetation is not eliminated during seedbed preparation. Desirable plant species would be interseeded with existing vegetation. A seed dribbler used with a crawler tractor, a small scalper/seeder, or range drill would be used to interseed strips. Broadcast seeding could possibly be used as well. Species to be seeded would be selected to meet management objectives developed for the allotment.

Plant Pest Control

Poisonous or noxious plants would be controlled where spot infestations occur or where the BLM would cooperate with other affected landowners in controlling infestations on relatively large areas. Biological control would be used where practical. Chemical control would conform to all applicable state and federal regulations.

STANDARD OPERATING PROCEDURES

The following procedures would be followed in the construction of all management facilities and for vegetative manipulations.

Specific projects would be assessed individually to determine whether they would have adverse environmental impacts.

Roads or trails to new construction or project sites would not normally be constructed. Use of existing roads and trails would be encouraged.

To comply with the National Historic Preservation Act of 1966, 36 CFR 800, and Executive Order 11593; all areas where ground is to be disturbed by range developments would be inventoried for prehistoric and historic features. Where feasible, all sites found by this inventory would be avoided. If buried cultural remains are encountered during construction, the operator would temporarily discontinue construction until the BLM evaluates the discovery and determines the appropriate action.

No action would be taken by the BLM that could jeopardize the continued existence of any federally listed threatened or endangered plant or animal species. An endangered species clearance with the U.S. Fish and Wildlife Service (FWS) would be required before any part of the proposal or alternatives would be implemented that could affect an endangered species or its habitat. In addition to the federally listed species, the BLM also would comply with any state laws that list animal or plant species as being threatened or endangered.

Wilderness values would be protected as required for lands under wilderness review or study by the Interim Management Policy.

All actions would comply with guidelines for implementing Visual Resource Management classes. The management criteria for the specific visual class would be followed.

Wildlife escape devices would be installed and maintained in water troughs.

In crucial wildlife habitat (winter ranges, fawning and calving areas, strutting grounds, etc.), construction work on projects would be scheduled during seasons when the animals are not concentrated in the area to avoid or minimize disturbances.

After construction, any disturbed areas would be revegetated with a mixture of grasses, forbs, and shrubs as appropriate for the site.

Analysis of cost effectiveness would be done in an Allotment Management Plan (AMP) prior to the installation of any management facility or land treatment.

All areas where vegetative manipulations occur would be totally rested from grazing for at least two growing seasons following treatment.

Vegetative manipulation would be done in irregular patterns creating more edge (more than strip and block manipulation) with islands of vegetation left for cover.

Consultation with the Montana Department of Fish, Wildlife, and Parks would be required prior to job layout, design, and accomplishment in accordance with the existing memorandum of understanding between the MDFW&P and BLM.

Chemical treatment would consist of applying approved chemicals to control noxious or poisonous plants. Before chemicals are applied, the BLM would comply with the Department of the Interior regulations. All chemical applications would be preceded by an approved pesticide use proposal. All applications of pesticides would be under the supervision of a certified pesticide specialist. All applications would be carried out in compliance with the pesticide laws of Montana.

APPENDIX K
GRAZING SYSTEMS

REST-ROTATION GRAZING SYSTEM

A rest-rotation grazing system will graze a prescribed number of livestock through a series of pastures for a given period of time while deferring certain of these pastures from grazing. The objective of the system is to produce seed of desirable forage species, to trample the seed, and then to rest the pasture to allow the seedlings to become established.

The grazing livestock act as agents to increase the density of desirable plants as well as the vigor of existing plants, and provide additional litter for soil protection. The system can be used to better control wind and water erosion (USDA, FS 1965a; Hormay 1970; USDA, FS 1972; Ratliff and Reppert 1974).

DEFERRED-ROTATION GRAZING SYSTEM

A deferred-rotation grazing system provides for a systematic rotation of pastures in which grazing is either delayed or discontinued to provide for plant reproduction, establishment of new plants, or restoration of the vigor of existing plants (Society of Range Management 1974).

One or more pastures are grazed during the spring, while the remaining one or more pastures are rested until after seed ripening of key species and then grazed. Deferred-rotation grazing differs from rest-rotation grazing in that no yearlong rest is provided.

DEFERRED GRAZING SYSTEM

A deferred grazing system is similar to deferred-rotation except the pastures in the allotment are not systematically rotated (Society of Range Management 1974). Under this system, grazing would begin after key plants have reached an advanced stage of development in their annual growth cycle. The growing season rest provided by this system promotes plant reproduction, establishment of new plants, or restoration of the vigor of old plants.

ALTERNATE GRAZING SYSTEM

Alternate grazing is grazing by livestock every other season, with the area being rested in the alternate year.

SHORT-DURATION, HIGH-INTENSITY GRAZING SYSTEM

High-intensity grazing permits short-duration grazing with the stocking rate higher than what would be considered normal. The purpose of this type of system is to obtain uniform use of all plants, desirable and undesirable alike, and to prevent regrazing on regrowth of the most desirable plants. This system allows desirable plants to compete for nutrients on an equal basis with less desirable plants.

APPENDIX L

DATA ON INDIVIDUAL ALLOTMENTS: ECOLOGICAL CONDITION, FORAGE POTENTIAL, AND CURRENT MANAGEMENT PRACTICES

METHODOLOGY

The initial vegetative inventories within the Garnet Resource Area were conducted during the mid-1960s. These surveys used the ocular reconnaissance method. Subsequent vegetative surveys were conducted between 1976 and 1982. These later surveys employed the soil-vegetation method, the *Montana Grazing Guides* (USDA, SCS 1977), and the *Montana Grazing Guides,* Amended 1983. The data collected have been used in this document to classify sites, determine vegetative condition of the existing vegetation, and determine suitability of the public lands for livestock grazing.

Classification

Several classification systems have been used in site identification. Sites dominated by a grass or shrub community were classified according to the *Montana Grazing Guides* (USDA, SCS 1977). Sites having the ability to produce 10 percent or greater canopy coverage of trees in a climax vegetation condition were classified using *Forest Habitat Types of Montana* (USDA 1977) and *Montana Grazing Guides,* Amended 1983. These systems interpret the site based upon the potential climax tree species and indicator plants in the understory.

Vegetative Condition

Inventory crews first identified and delineated the boundaries for the sites to be inspected. Estimates of plant species composition, based on weight, were then made for the plant community found on each site. Using tables in the *Montana Grazing Guides,* (USDA, SCS 1977) and more detailed data in the SCS's unpublished Technical Range Site Descriptions for Montana, the present species composition was compared to the potential climax composition for the site. A condition rating was computed for the vegetation on each site. This rating represents the extent to which the site differs from potential climax. While this condition rating is often referred to as range condition, this document refers to the rating as vegetative condition.

Four condition classes are set forth by the SCS. A plant community in excellent condition exhibits little change in species composition when compared to the potential climax plant community for the site. Between 100 percent and 75 percent of the kinds and amounts of vegetation produced would be found in climax. Good condition communities produce between 75 percent and 51 percent of the kinds and amounts of vegetation found in climax. Fair condition communities produce between 50 percent and 26 percent of the kinds and amounts of vegetation found in climax. Poor condition communities produce between 25 percent and 0 percent of the kinds and amounts of vegetation found in climax. A fifth condition class of unclassified was used in the inventory to designate vegetative communities that could not be legitimately compared to a climax community. The unclassified rating was applied to areas that had been plowed and seeded, areas where native vegetation has been manipulated by mechanical or chemical means, areas of undergrowth communities having dense forest canopies or heavy duff accumulation, etc.

Determination of Vegetative Condition for Ocular Surveys

Approximately 50 percent of the public lands in the Garnet Resource Area are covered by the mid-1960 ocular survey. This type of survey method does not provide a direct method to determine vegetative condition class but rather provides percent canopy cover data. In order to extract vegetative range condition from canopy coverage data, the assumption was made that there is a direct correlation between percent composition by weight and percent canopy coverage of those vegetative species identified in the ocular surveys. The estimated vegetative composition of each range site mapped was compared with the climax plant community of the same range site in the same precipitation zone as defined by the *Montana Grazing Guides* (USDA, SCS 1977) to determine the vegetative condition.

Climax plant communities for each range site were determined from protected or undisturbed areas. These areas were considered to be the climax vegetative community for that particular site. The degree to which the present plant community varied from the undisturbed area is described by four condition classes: excellent, good, fair, and poor.

Suitability

The suitability of each site for livestock grazing was recorded. One of four ratings was assigned to each site. The suitable rating applies to sites with no environmental factors restricting livestock access and use of the site. The potentially suitable rating applies to sites where environmental factors now limit livestock access or use but changes could be made that would make the site suitable. The unsuitable rating applies to sites where environmental factors that cannot be changed now limit livestock access or use. The limited suitability rating applies to sites that are most commonly used for areas producing ephemeral vegetation. The major criteria used to rate rangeland suitability are distance from water, slope or other physical barriers, forage production, and the erosion rating for the soil.

Logged Sites

Logged sites, for purposes of this document are generally described as areas where the climax vegetative stage is dominated by trees; and the trees have been removed, at least partially, through logging. These logged sites do not fit any known classification scheme yet developed and, therefore, cannot be classified as to vegetative condition.

Waste Areas

Waste areas are generally characterized as areas dominated by slopes over 50 percent, tree canopy coverage over 70 percent, and rock outcrops, all of which are unavailable for livestock grazing.

FORAGE PRODUCTION

Estimated forage production figures were generated from ocular surveys, *Montana Grazing Guides* (USDA, SCS 1977) and *Montana Grazing Guides*, Amended 1983. Ocular reconnaissance method is a method of inventorying vegetation by estimating total forage density and percent composition. Density consists of general ocular estimates of overhead (vertical) ground cover for the current year's growth of all usable vegetation on each range type. Density is recorded as the decimal proportion of the ground that is covered as viewed from directly above. Composition values for each species are obtained through estimates of the percentage of the total density attributable to each.

Lists of proper use factors are prepared for each plant species. Proper use for a particular plant is the degree to which its current annual growth will be utilized by a grazing animal when the range is properly used. Proper use tables from a number of nearby areas were compared, adapted to local plant species, and adjusted for grazing patterns observed in this local area.

The proper use pastures were selected to be representative of the survey area done by that particular survey crew. The same persons that did the range survey did the proper use pasture survey. The proper use pasture must have a good actual use record, be representative of the area being surveyed (similar soil, vegetation, climatic influences), and be interpreted as properly used. Proper use was determined by some utilization studies and professional judgment.

A forage inventory survey is a best estimate at a point in time and space as to what a particular piece of rangeland can support. The actual grazing capacity on a piece of ground depends on a variety of ecological circumstances and on the grazing program, and is evidenced by adequate trend, accurate actual use information, and livestock performance. When trend and actual use information was available it was used in lieu of survey information.

Proper use factors for each species are multiplied by the percentage of that species in the range type and added together to arrive at the average proper use factor. This figure is then multiplied by the average density for the type, to obtain a Forage Acre Factor (FAF). The FAF is multiplied by the percentage of usable forage to obtain a net FAF.

The Forage Acre Requirement (FAR) is determined by study of a proper use pasture in which actual use is known. The acres of each type are multiplied by the FAF for that type to determine forage acres for each type. These are added, then the sum is divided by AUMs of actual (proper) use to determine the FAR. The FAR is divided by the net FAF to determine the grazing capacity in acres per Animal Unit Month (AUM).

The *Montana Grazing Guides*, Amended 1983, provide a means by which grazable forest lands can be evaluated as to their potential to provide livestock forage. Grazing guides incorporate soils, climate, canopy density, ecological condition, forage value, and livestock distribution factors.

The new guides combine an ecological condition concept and a forage value rating concept to overcome, for the most part, the limitations of each concept used alone. By determining both ecological condition and a modified forage value rating, one can use them as the axis of a matrix to refine stocking estimates and retain an ecological condition concept. Understanding ecological condition of forest understory plant communities is more difficult than on rangeland because understory composition changes with canopy density. To develop information useful in building forest land grazing guides, composition must be determined in relation to canopy density as well as other environmental factors.

CURRENT PERMITTED USE AND TARGET STOCKING RATES

Current stocking levels in the Garnet Resource Area were arrived at from the ocular surveys made during the mid-1960s. Updated range surveys using SCS grazing guides were used to establish AUM target stocking rates anticipated to occur in the long term. Table L-1 gives information for I allotments, Table L-2 gives information for M allotments, and Table L-3 gives information for C allotments.

TABLE L-1
I CATEGORY ALLOTMENTS

Allot. No.	Allotment Name	Biome	Acres (BLM only)	Current Permitted Use (BLM) AUMs	Vegetative Condition (Acres of BLM only)						
					Excellent	Good	Fair	Poor	Waste	Unclassified	Logged
7101	Bonita-Clinton-Potomac Assoc.	C.F.	12,143	215	4,807	2,799	739	160	739	—	2,899
7102	Weaver	C.F.	4,410	121	5	197	672	51	2,554	149	782
7104	Lund #1	C.F.	8,942	145	—	653	399	—	6,146	—	1,744
7105	McMahon	C.F.	1,460	37	—	74	177	—	680	—	29
7106	Iverson	C.F.	3,937	44	—	25	410	26	1,976	—	1,500
7108	Lund #2	C.F.	3,518	140	—	557	538	45	1,516	—	862
7109	Semenza #1	C.F.	5,908	124	—	585	1,123	11	4,189	—	—
7219	C. Mannix	C.F.	2,000	55	62	11	7	—	1,520	—	400
7221	Murphy	C.F.	1,103	58	—	436	32	—	635	—	—
7312	H. Luthje	C.F.	2,866	324	764	1,589	151	—	341	21	—
7324	Collins #2	C.F.	1,362	110	61	270	104	—	720	—	207

C.F. = Coniferous Forest
G. = Grassland
c/c = Cow-calf
y = Yearling
h = Horse

TABLE L-2
M CATEGORY ALLOTMENTS

Allot. No.	Allotment Name	Biome	Acres (BLM only)	Current Permitted Use (BLM) AUMs	Vegetative Condition (Acres of BLM only)						
					Excellent	Good	Fair	Poor	Waste	Unclassified	Logged
7115	Nelson	C.F.	1,481	113	—	—	791	—	602	—	160
7118	* Five Mile	C.F.	480	60	—	—	162	—	77	—	241
7119/ 7120	* McElwain Cr./ Common Allot.	C.F.	6,358	140	—	1,871	628	—	2,642	—	1,217
7121	* Wales	C.F.	856	120	—	146	237	—	160	—	313
7122	Koessler	C.F.	1,114	8	—	862	96	—	—	—	156
7123	Lindberg Cattle Co.	C.F.	6,056	101	130	1,024	—	883	4,019	—	—
7207	* Braziel Cr.	C.F.	8,105	362	2,709	625	1,389	16	2,866	—	500
7212	C. Graveley	C.F.	1,999	110	72	423	266	—	1,238	—	—
7213	* Marcum Mtn.	C.F.	3,443	113	1,345	735	119	—	682	—	562
7216	Keiley	C.F.	362	78	89	31	242	—	—	—	—
7224	* Warm Sp.	C.F.	7,361	466	722	825	2,114	87	3,582	—	31
7228	Henault	G.	80	15	—	—	—	—	—	80	—
7229	Cochran	C.F.	320	41	73	104	—	—	143	—	—
7303	Strand	C.F.	395	65	—	132	111	—	152	—	—
7309	Johnson	C.F.	1,061	164	64	771	20	5	176	—	25
7311	Lane	C.F.	1,836	210	1,371	60	345	13	1,086	195	—
7313	J. Luthje	C.F.	1,003	192	32	603	20	—	348	—	—
7314	Neal #1	G.	601	216	—	303	173	—	125	—	—
7316	* Ram Mtn.	C.F.	4,151	398	—	2,336	677	—	818	—	320
7319	* West Fork Buttes	G.	640	140	—	611	29	—	—	—	—
7320	* Stewart Lake	G.	2,251	318	176	787	—	—	920	—	368
7323	Jensen Ranch #2	G.	1,342	123	—	15	414	—	25	888	—

CURRENT MANAGEMENT INFO.

Livestock (BLM only)		Season of Use		Est. Forage Production (BLM only) AUMs
No.	Class	From	To	
664	c/c	6/1	9/30	2,242
27	c/c	6/1	10/15	293
7	c/c	6/10	10/10	582
9	c/c	6/10	10/9	177
11	c/c	6/15	10/15	81
35	c/c	6/10	10/10	216
31	y	6/10	10/10	247
28	c/c	7/20	9/20	79
15	c/c	6/15	10/15	255
81	c/c	6/1	9/30	641
31	c/c	6/10	9/30	146

CURRENT MANAGEMENT INFO.

Livestock (BLM only)		Season of Use		Est. Forage Production (BLM only) AUMs
No.	Class	From	To	
28	c/c	6/16	10/15	162
30	c/c	7/1	8/31	87
46	c/c	6/20	9/20	769
40	c/c	6/1	8/31	150
2	c/c	6/15	10/14	156
25	c/c	6/15	10/15	309
121	c/c	7/1	9/30	1,190
32	c/c	6/15	9/30	172
32	c/c	6/1	9/15	898
26	c/c	6/1	8/31	91
117	c/c	6/16	10/15	898
5	c/c	6/15	9/30	15
9	c/c	6/1	10/15	63
13	c/c	6/1	10/31	71
55	c/c	6/25	9/30	213
53	c/c	6/15	10/14	235
53	c/c	7/1	12/31	287
48	c/c	5/15	9/30	216
72	c/c	5/15	10/31	737
35	c/c	6/1	9/30	207
71	c/c	6/1	10/15	381
27	c/c	6/1	10/15	199

TABLE L-3
C CATEGORY ALLOTMENTS

Allot. No.	Allotment Name	Biome	Acres (BLM only)	Current Permitted Use (BLM) AUMs	Vegetative Condition (Acres of BLM only)						
					Excellent	Good	Fair	Poor	Waste	Unclassified	Logged
7110	Shelley	C.F.	200	4	—	—	—	—	—	100	100
7111	Joseph	G.	80	11	—	—	—	—	—	80	—
7112	Bearmouth	G.	132	27	—	—	—	—	—	132	—
7113	Henderson	G.	100	15	—	—	—	—	—	100	—
7114	Enman	C.F.	240	26	—	—	—	—	—	240	—
7116	Lindbergh	C.F.	40	2	—	40	—	—	—	—	—
7124	Snead	C.F.	40	4	—	—	—	—	33	—	7
7201	*Pilgeram	C.F.	2,018	64	—	48	1,165	10	755	40	—
7202	A. Beck	C.F.	640	30	—	—	264	29	347	—	—
7203	D. Beck	G.	925	84	—	297	43	—	415	47	123
7204	L. Beck	C.F.	200	49	—	—	—	—	—	200	—
7205	Benson	C.F.	360	27	—	260	27	—	33	—	40
7206	Gimlet Creek	C.F.	322	5	—	—	—	—	—	322	—
7208	Coughlin, A.	C.F.	54	1	—	—	—	—	—	54	—
7209	Dingwall	C.F.	40	3	—	—	—	—	—	40	—
7210	Dutton	C.F.	440	23	—	400	40	—	—	—	—
7211	Gravely, D.	C.F.	80	6	—	80	—	—	—	—	—
7214	Hogan	G.	158	15	—	—	—	—	—	158	—
7215	Hollenback	C.F.	40	10	—	—	—	—	—	40	—
7217	Lingenfelter	C.F.	40	8	13	16	—	—	11	—	—
7218	McCormick	G.	25	7	—	—	—	—	—	25	—
7220	Mannix, F.	C.F.	40	8	—	—	—	—	—	40	—
7222	Semenza #2	G.	205	35	—	—	—	—	—	205	—
7223	Radtke #1	C.F.	106	7	—	—	160	—	—	—	—
7225	Wohlers	G.	40	6	—	—	—	—	—	40	—
7226	Weaver, J.	C.F.	197	35	—	—	—	—	—	197	—
7227	Hughes	C.F.	40	22	—	—	—	—	—	40	—
7230	Geary	G.	22	5	—	—	—	—	—	22	—
7231	Sunny Slope	C.F.	280	10	—	—	—	—	—	280	—
7232	Gilman	G.	160	10	—	—	—	—	—	160	—
7301	Bauer	C.F.	279	13	—	—	279	—	—	—	—
7302	Bissonette	C.F.	175	20	65	—	—	—	110	—	—
7304	Collins #1	C.F.	237	42	—	157	48	—	32	—	—
7305	Gillies	C.F.	80	8	—	—	—	—	—	80	—
7306	Vick	C.F.	120	3	—	—	120	—	—	—	—
7307	Jensen, W.	C.F.	565	15	86	—	—	—	479	—	—
7308	Jensen Ranch #1	G.	160	56	160	—	—	—	—	—	—
7310	Morrison	G.	80	25	—	—	—	—	—	80	—
7315	Mungas	C.F.	231	22	—	177	—	—	54	—	—
7317	X Diamond Bar	C.F.	255	25	45	—	—	—	170	40	—
7318	Radtke #2	C.F.	280	33	—	38	—	—	49	—	193
7321	Sanders	C.F.	573	56	322	50	—	—	201	—	—
7322	Flint Creek	C.F.	300	34	—	90	—	—	210	—	—
7325	Kolbeck	C.F.	40	6	—	—	—	—	—	40	—
7326	Spieker	G.	16	16	—	—	—	—	—	16	—
7501	McGillvray	G.	44	5	—	—	—	—	—	44	—
7504	McIntosh	C.F.	150	20	—	—	—	—	—	150	—
7505	DeLeo	G.	40	8	—	—	—	—	—	40	—
7506	Rierson	C.F.	122	38	—	—	—	—	—	122	—
7507	Mattice	C.F.	320	38	—	—	—	—	—	320	—

CURRENT MANAGEMENT INFO.

Livestock (BLM only)		Season of Use		Est. Forage Production (BLM only)
No.	Class	From	To	AUMs
2	c/c	7/1	8/31	4
6	c/c	10/1	10/31	11
5	c/c	5/15	10/15	27
4	c/c	6/21	10/20	15
5	c/c	5/15	9/30	26
1	c/c	6/1	10/15	7
2	c/c	6/16	9/30	4
16	c/c	6/16	10/15	224
7	c/c	6/1	10/15	38
21	c/c	6/1	9/30	127
11	c/c	6/1	10/15	49
6	c/c	6/1	10/15	56
5	c/c	7/1	8/1	5
1	c/c	6/1	10/1	1
1	c/c	3/1	2/28	3
29	c/c	7/1	10/1	75
2	c/c	6/15	9/30	10
6	c/c	6/1	10/15	15
3	c/c	6/1	10/15	10
2	c/c	6/1	9/30	11
2	c/c	6/1	9/30	7
2	c/c	6/15	9/30	8
12	c/c	6/15	9/15	35
1	c/c	3/1	2/28	21
1	c/c	3/1	2/28	6
14	c/c	6/15	8/31	35
5	c/c	6/1	10/15	22
1	c/c	3/1	2/28	5
7	c/c	8/15	9/30	10
4	c/c	6/15	9/30	10
4	c/c	6/15	10/1	50
5	c/c	5/15	9/15	29
12	c/c	6/15	10/1	42
1	c/c	3/1	2/28	8
1	c/c	6/15	10/1	22
5	c/c	7/15	10/15	26
28	c/c	6/1	10/15	56
25	c/c	8/15	9/14	25
6	c/c	6/15	10/15	42
7	c/c	6/1	9/15	25
3	c/c	7/1	9/30	42
12	c/c	6/1	10/15	109
8	c/c	6/15	10/15	34
2	c/c	7/1	9/30	6
3	h	6/1	11/30	16
1	c/c	3/1	2/28	5
5	c/c	6/1	9/30	20
1	c/c	6/15	10/1	8
3	c/c	6/1	9/30	38
10	c/c	6/1	9/30	38

C.F. = Coniferous Forest
G. = Grassland
c/c = Cow-calf
y = Yearling
h = Horse
* = Existing AMP Allotments

APPENDIX M

MANAGEMENT OPPORTUNTIES AND OBJECTIVES FOR I ALLOTMENTS

Table M-1 displays resource opportunities, conflicts, and proposed management objectives for all I allotments. Table M-2 displays the proposed ranking of allotments for implementation of management changes, based on current BLM range management policy.

A number of socioeconomic and natural resource factors have been considered in the ranking of I allotments for implementation. Allotments with a high benefit cost ratio, high resource values, and significant use conflicts generally will receive a high priority for changes in management, and thus are proposed for a higher ranking in Table M-2. Other factors considered include the potential for increased forage production, the livestock operator's dependency on public land for grazing, the need to coordinate with other land management agencies, and the projected cost of implementation. The recommendations of the public, other agencies, and the District Grazing Advisory Board will be considered prior to final ranking.

This ranking will be used to select allotments for implementation, but is subject to change as new or better information becomes available. Examples of new considerations are annual budget constraints within BLM, an operator's willingness to contribute to the cost of range improvements, unexpected public controversy, etc. The benefit cost data used in this analysis represents an initial estimate of the number and cost of improvements needed. Better estimates will be available as field inspections of allotments are conducted.

MANAGEMENT OPPORTUNITIES AND OBJECTIVES

I ALLOTMENTS

Allotment No.	Allotment Name	Resource Opportunities/Problem	Resource Management Objectives
7101	Bonita-Clinton-Potomac	Majority of the livestock vegetation is in good and excellent condition. Scattered areas of riparian habitat are in unsatisfactory condition. Conflicts exist over extensive areas between livestock grazing and reforestation. Vegetative trend is generally static. Noxious weeds (knapweed) are common throughout the area.	Maintain the existing vegetative condition. Improve riparian vegetation where necessary in Cramer Cr. to a satisfatory condition. Resolve livestock/reforestation conflicts through the initiation of grazing management systems. Continue to improve upon present vegetative trend. Initiate noxious weed control where majority landowner cooperation can be obtained.
7102	Weaver	Vegetative trend is generally static; vegetative condition is generally fair with some poor. Generally riparian areas are in unsatisfactory condition. Reforestation/livestock grazing conflicts are serious, especially on slopes under 40%. Noxious weeds (knapweed) are common throughout the area.	Improve fair and poor condition range to good condition. Improve the riparian habitat to a satisfactory condition in the Ten Mile drainage. Resolve livestock/reforestation conflicts through the initiation of grazing management systems. Initiate noxious weed control where majority landowner cooperation can be obtained, especially in the Ten Mile drainage.
7104	Lund #1	Big game winter range areas are in unsatisfactory condition. Most riparian habitat areas are in unsatisfactory condition. Reforestation/livestock grazing conflicts are serious throughout the area. Noxious weeds (knapweed) are common throughout the area.	Reduce livestock use on winter game range on the Clark Fork face along I-90 thru grazing management systems. Improve riparian habitat to satisfactory condition in Upper Mulkey, Black Bear, and Upper Rattler Gulch. Resolve reforestation/livestock grazing conflicts through grazing management systems. Initiate noxious weed control where majority landowner cooperation can be obtained.

Allot-ment No.	Allotment Name	Resource Opportunities/Problem	Resource Management Objectives
7105	McMahon	Riparian areas are in unsatisfactory condition. Vegetative trend is generally static in a fair condition. Reforestation/livestock grazing conflicts are serious on a few acres. Noxious weed (knapweed and musk thistle) are common throughout the area.	Improve riparian areas to a satisfactory condition, especially in Upper Packer Gulch. Improve vegetative condition to good or excellent condition in Upper Dry Mulkey Gulch. Initiate grazing management systems on areas where reforestation/livestock grazing conflicts exist. Initiate noxious weed control in areas where majority landowner cooperation can be obtained.
7106	Iverson	Riparian areas are in unsatisfactory condition. Vegetative trend is static; vegetative condition is generally fair. Reforestation/livestock conflicts are widespread.	Improve all riparian areas to a satisfactory condition through initiation of grazing management systems. Improve range to good and excellent condition. Initiate grazing management systems on the entire area to reduce reforestation/grazing conflicts.
7108	Lund #2	Big game winter range areas are in unsatisfactory condition. Most riparian habitat areas are in unsatisfactory condition. Reforestation/livestock grazing conflicts are serious throughout the area. Noxious weeds (knapweed) are common throughout the area.	Reduce livestock use on winter game range on the Clark Fork face along I-90 thru grazing management systems. Improve riparian habitat to satisfactory condition in Upper Mulkey, Black Bear, and Upper Rattler Gulch. Resolve reforestation/livestock grazing conflicts through grazing management systems. Initiate noxious weed control where majority landowner cooperation can be obtained.
7109	Semenza #1	Vegetation is generally in a good condition, and trend is static. Riparian areas are in unsatisfactory condition in Murray Cr. and satisafactory in Douglas Cr. Proposed forest management actions will create livestock/reforestation conflicts.	Maintain or improve vegetative condition. Improve riparian habitat to satisfactory condition in Murray Cr. and maintain present condition in Douglas Creek. Initiate a grazing management system to resolve potential reforestation/livestock conflicts.
7219	C. Mannix	Most riparian habitat areas in this unit are in unsatisfactory condition. Vegetative trend is generally static or slightly downward. Noxious weeds (knapweed) have invaded lower parts of this area.	Improve riparian habitat areas to satisfactory condition, especially in main Cottonwood Cr. Maintain or improve vegetative trend. Initiate noxious weed control along logging roads and skid trails.
7221	Murphy	Vegetative trend is generally in a static or downward trend. Riparian habitat is generally satisfactory with some areas along main Warm Spring Creek in unsatisfactory condition.	Maintain or improve vegetative trend through the implementation of grazing management systems. Improve riparian habitat to a satisfactory condition.
7312	H. Luthje	Vegetative condition is generally high good and trend is static. Riparian habitat is in satisfactory condition. Proposed forest management actions may create reforestation/riparian/livestock grazing conflicts.	Maintain vegetative condition and trend. Maintain riparian habitat in satisfactory condition. Install grazing management sytems to resolve potential livestock/reforestation/riparian conflicts.
7324	Collins #1	Vegetative trend is generally upward. Riparian areas are generally in satisfactory condition, except for a few small isolated areas where overuse by both livestock and big game on browse plants is evident. Reforestation problems are primarily due to heavy grass sodding.	Maintain vegetative trend. Improve riparian problems and reduce livestock use on browse plants through the installation of grazing management systems. Temporarily fence reforestation efforts to control livestock grazing around plantations that have been scarified and hand planted.

ALLOTMENT RANKING FOR I ALLOTMENTS

Allotment No.	Allotment Name	Total Cost x $1000	Benefit Cost Ratio	Internal Rate of Return	Critical Resource Values	Use Conflicts	Need for Change in Condition	Percent Increase	Dependency*	Other Agency Coordination	Other Factors Considered	Proposed Rank
7101	Bonita-Clinton-Potomac	22.0	3.6		Forest-mod Wildlife-low Water-mod	Reforestation areas, spring game range, riparian area	Low/mod	91	High	High-CT/SCS/PCT	Very high interest by all parties	1
7102	Weaver	33.5	2.8	10.6	Forest-low Water-mod Veg-high	Reforestation, riparian area	Low	12	Mod	None	—	5
7104	Lund #1	54.1	2.3	12.6	Forest-high Water-mod Wildlife-high	Reforestation, riparian, winter range	Mod	38	Mod	High-CT/PCT	Extensive timber harvest by BLM/CT/PCT	2
7105	McMahon	72.6	1.9	4.7	Forest-mod	Reforestation	Low	25	High	High-CT	—	8
7106	Iverson	86.5	1.7	7.3	Forest-high Water-mod	Reforestation, riparian	Mod	64	High	None	Main road to high rec. use area, Garnet Ghost Town	4
7108	Lund # 2	99.5	1.7	9.6	Forest-high Water-mod Wildlife-mod	Reforestation, riparian, winter range-mule deer	Mod	15	Mod	High-CT/PCT	Extensive timber harvest	3
7109	Semenza # 1	116.8	1.6	14.8	Forest-mod Wildlife-mod	Proposed reforestation, summer and fall range	Low	61	Low	Mod-CT	Proposed long-term timber harvest. Important elk hab.	6
7219	C. Mannix	128.7	1.5	3.2	Forest-low Veg-mod Water-mod	Reforestation, grass species, riparian	Low/mod	3	Mod	None	Watershed potential, fish habitat	7
7221	Murphy	147.7	1.4	0.8	Water-mod Veg-low	Riparian, grass species	Low	45	High	None	—	9
7312	H. Luthje	163.9	1.3	8.0	Forest-mod	Proposed sales	Low	48	Low	High-FS	Coord. FS/BLM Timber Sale	10
7324	Collins #1	169.5	1.4	13.0	Forest-mod Wildlife-mod	Reforestation, winter and spring range	Low	20	Low	None	—	11

* Dependency of ranch operation on use of public lands in grazing operation

PCT — Plum Creek Timber
CT — Champion Timberlands
SCS — Soil Conservation Service
FS — Forest Service

APPENDIX N

ANALYSIS OF THE NO GRAZING ALTERNATIVE

MANAGEMENT ACTIONS

Eliminating livestock grazing from the public lands would call for a series of management actions. These actions include surveying and fencing the boundaries of public lands, placing cattleguards on all access roads into public lands, removing all livestock related improvements that do not benefit other resources, and canceling grazing leases and permits.

IMPACT ANALYSIS OF MANAGEMENT ACTIONS

The following is an analysis of the impacts these management actions would have on the resources on public lands and to the users of these resources.

Air Quality

No short-term impacts to air quality are anticipated. However, the reduction in animals grazing the public land may have long-term impacts. An increase in vegetative cover would provide additional fuel in wildfire outbreaks causing the fires to burn hotter and faster. Such fires are difficult to control and may therefore burn more acreage. The resulting smoke and combustion gases would deteriorate air quality. These impacts would be moderately significant for localized areas.

Soils and Water

The elimination of livestock grazing would have beneficial impacts on streamside riparian habitat. Livestock prefer riparian habitat and damage streambanks through hoof action as well as eating the vegetation. Soil compaction, erosion, and a deterioration in water quality results. These conditions would tend to improve as areas revegetated and freeze/thaw action loosens the compacted soil. These impacts would be moderately significant for localized areas covering about 8,962 acres.

Energy and Minerals

Conflicts between livestock and energy and mineral operations would be eliminated. However, cattleguards would be needed on all access roads. This impact would be moderately significant for small operations.

The fencing of the boundaries of the public lands would make identifying public surface easier for energy and mineral exploration. However, public minerals also extend to private lands. Cross-country methods of exploration would be made more difficult by the added fences. These impacts would not be significant.

Lands and Administration

Fencing the boundaries of public lands would decrease the likelihood of trespass activities. All right-of-way grants would carry stipulations for fencing and installation of cattleguards on access roads. This impact would be moderately significant to some applicants.

The Garnet Resource Area is made up of scattered tracts. If the resource area was one consolidated tract it would take only 60 miles of boundary fence. However it exists in 349 tracts requiring 911 miles of boundary fence. Surveying and fencing of the boundaries would be a substantial administrative cost, as would be the installation of cattleguards on access roads. Maintenance of these items would be a continuing necessity. This impact would be highly significant.

Recreation

Recreation access would be affected by a number of factors if livestock use is eliminated. The principle factor is that of fencing. New fences along property boundaries and easements or rights-of-way would inhibit recreational travel both with vehicles and on foot or horseback. On the other hand, fencing would identify the boundaries of public land and thus would help users to stay on public land for their recreational pursuits, eliminating some of the present conflicts between private landowners and recreationists, particularly along waterways. These impacts would be moderately significant.

Many vehicle ways are presently maintained by livestock users for access to their allotments. Such maintenance enhances recreational opportunities by preserving traditional routes. As a result of the elimination of grazing opportunities, ranchers and other landowners would stop such maintenance and access ways would deteriorate. In addition, landowners may become less inclined to allow recreational access via their private land. Presently several cooperative agreements exist with grazing lessees that open their private land to public use along with adjacent public lands. This opens additional lands for hunting. Eliminating grazing on public lands would likely place in jeopardy the cooperative agreements for walk-in hunting areas in the Blackfoot Special Management Area and the areas listed in Table 3-9. This impact is highly significant for localized areas.

Assuming that public access remains available, the elimination of livestock from areas that are popular for recreation generally would enhance the recreational experience. Roadless and undeveloped areas would appear more wild without the presence of livestock. The reduction of manure and flies would also enhance the enjoyment of recreation areas. Riparian zones would be less trampled and often more desirable for camping, fishing, and other similar activities. These impacts would be moderately significant.

Vegetative changes would take place that could affect recreation. Changes in wildlife populations would in turn affect big and small game observation and hunting. Depending on the specific site conditions, more shrubs or grass would influence the amount of desirable space for picnicking, camping, or other recreational activities. Wildfires may become more frequent and severe, thus creating public hazards and impacting the physical environment that recreational activities depend on over the long term. These impacts would be moderately significant for localized areas.

Visual Resources

The vigorous vegetative growth that would result from a decrease in grazing animals would enhance the visual quality of the landscape in the resource area. Visual quality would also be enhanced by the removal of range improvements such as internal fence lines. However, this would be offset by the construction of boundary fences. These impacts would be moderately significant.

Cultural

The fencing of boundaries may bring about the discovery of new cultural sites. The fences will better designate public land and discourage the removal or destruction of cultural assets. These impacts would be moderately significant for localized areas.

Wilderness

The elimination of livestock grazing in wilderness areas would have similar impacts as listed for recreation. In addition, the removal of range improvements would enhance naturalness. Under wilderness laws, livestock operators may be authorized to use motorized vehicles inside the wilderness area. This alternative would remove the possibility of this impact. These impacts would be moderately significant for localized areas.

Forestry

It is well established that seedlings are damaged by trampling. Livestock also are a significant contributor to the problem called zootic climax. This is where years of heavy livestock use has altered the understory vegetation resulting in the formation of a dense sod. Sodded areas are impossible to reforest unless the sod is mechanically scarified or treated with an herbicide.

Fifty-nine percent or 66,406 acres of suitable CFL have reforestation problems. Much of this acreage is now grazed or would be suitable if the canopy is opened. With the current level of harvest, there will be some 10,500 acres continually in the status between cutover and stocked, which lasts for approximately 15 years. These are the acres of transitory range. The first five years are critical for livestock damage. Therefore, 3,500 acres are always susceptible to livestock damage. Under current management those acres that are reforested artificially and are susceptible to cattle damage are planted to 8x8 foot spacing. This is 20-25 percent over normal stocking. Cattle damage however is not the only reason for tighter spacing. Therefore, this is not always a cost that could be removed by eliminination of grazing.

The elimination of livestock grazing from all CFL would not be sufficient basis by itself to adjust the annual sustainable harvest. Removal of livestock would undoubtedly facilitate forest management, but it is not critical to the success or failure of the program. Therefore, the short and long term impacts on forest management are not significant.

Range

Approximately 826 miles of new fence and 85 miles of existing boundary fence would be needed to assure that livestock would not be able to enter and graze public lands. New construction costs would be approximately $4,128,750. Maintenance costs would run about $3,188,500 over the life of the plan.

About 254 new cattleguards would be needed in the boundary fence. The construction costs would run $635,000 (based on 1983 construction costs). Long-term maintenance costs would run about $127,000 per year over a 20-year period. The total additional expenditure to implement this alternative is $8,079,250 over a 20-year period. This is a highly significant impact.

Approximately 85 miles of interior livestock fences would no longer be needed and would cost about $42,500 to remove (based on $500/mile removal costs). Existing grazing leases would allow ranchers who contribute to the fences to have salvage rights.

Over the long term, the elimination of livestock grazing would allow improvement in vegetative condition in areas rated as good, fair, or poor. This is most applicable to riparian areas. This impact would be moderately significant for localized areas.

The cancellation of grazing leases and permits would take two to ten years. All lessees and permittees are guaranteed a two-year notification of cancellation. If permits and leases were simply allowed to expire before cancellation, ten years would pass before all leases were canceled. There are currently 5,930 AUMs bringing in about $8,000 per year. These receipts would decline, but the loss would be insignificant.

Upon cancellation any range improvements that are beneficial to other resources would be maintained by the BLM. At present the lessee/permittee would be eligible for compensation for their lost investment in these range improvements. These impacts would be moderately significant for localized areas.

Vegetation

The short-term effects of eliminating livestock grazing on public lands would include improving the vigor of those plant species that are preferred as forage by livestock in many grazing allotments. The amount of vegetation remaining onsite as residual cover and litter would increase markedly.

No dramatic resource area-wide changes would be expected in the composition of vegetative communities in the short term because the establishment of new long lived perennial plants, which characterize the vegetation in this region, occurs over a longer period. Even the sites with the greatest potential to respond vegetatively to management changes would require an estimated five years to improve from a fair to good condition under the most favorable management practices. (Refer to Appendix L for a discussion of how sites were classified and how vegetative condition ratings were assigned to plant communities found on these sites.)

The expected increase in residual vegetation would also increase the potential for wildfires. Wildfires would be expected to spread rapidly and burn more intensely.

The long-term effects of elimination of livestock grazing can be estimated thru inspection of areas where grazing has been excluded for a relatively long period of years. Such areas were located and inspected during the course of the vegetative inventory. In general, these areas are strongly dominated by long lived perennial grasses that provide the forage preferred by cattle, elk, and other large ungulates that subsist mainly on grass and grass-like plants. The exceptions to this are sites where woody vegetation dominates the site if undisturbed. The plants in these communities are often very coarse and some exhibit decadence as a result of excessive standing litter within the crown of the plant.

Wildlife and Fisheries

About 7,359 acres of unsatisfactory big game winter range would improve to satisfactory over the long term if livestock grazing were eliminated. About 4,204 acres of unsatisfactory riparian habitat would improve to satisfactory over the long term if livestock grazing were eliminated. Competition between wildlife and livestock for summer range forage would be eliminated. About 6.4 miles of suboptimum aquatic habitat would improve as bank cover and stability increased. Social intolerance between some big game species and livestock would no longer be a factor. Habitat changes brought on by wildlife populations could be more easily identified and monitored. These benefits to habitat and wildlife would be moderately significant.

The fencing of public land boundaries in mountainous terrain and intermingled ownership patterns would create barriers for big game movement. The incident of mortality due to fence entanglement would increase with the increased miles of fence. This would be somewhat mitigated because all internal fences would be removed except when they are needed to further resource programs.

In some cases livestock under proper management can be a tool for effective forage manipulation to maintain or even improve wildlife habitat. These management options would be forgone under this alternative.

These impacts to wildlife population and habitats would be moderately significant to localized areas.

Economic

If all BLM grazing was eliminated in the Garnet Resource Area, changes in income by typical ranch sizes would range from a reduction of 2.76 percent to 12.67 percent. See Table N-1 for the detailed information by ranch size. Explanation of how this analysis was done is contained in Appendix R.

TABLE N-1

EFFECT OF NO GRAZING ON RANCH INCOME

Ranch Size Category	Baseline Optimum Profit	No Grazing Optimum Profit	% Difference in Optimum Profit
Class I	6,730.13	5,877.17	—12.67
Class II	20,611.96	19,615.19	— 4.80
Class III	37,396.21	36,038.55	— 3.60
Class IV	132,560.09	128,896.62	— 2.76

These impacts would be insignificant for permittees/lessees who have 25 AUMs or less. However, the significance of losing the use of public lands could be high for those who depend on public lands for a great part of their total AUMs.

The permitted or leased AUMs may be used by livestock operators to help secure operation loans. Also the AUMs contribute to the value of the private lands at the time of sale. Loss of AUMs on public lands can have a profound impact on property value if the operation is no longer a viable economic unit without them.

A major component of an operator's income comes from ranching in the Garnet RA. This is true for all but the smallest ranches that may produce more income from crops or from outside sources. Therefore, a reduction in BLM grazing would have a direct effect upon personal income. Even with large cuts in income, most ranchers would continue ranching in the short term. One of the major determining factors in how long an operation can sustain itself through depreciation, deferred maintenance, or use of equity capital is the operator's current debt load. If the rancher's land is paid for, it is likely that they can continue in business.

The counties of Granite, Missoula, and Powell would see a reduction in grazing receipts of about $2,168, $334, and $1,604 respectively each year. This would not be a significant reduction in income for the counties.

Social

The social wellbeing of about 80 ranch families would decrease under this alternative. The magnitude of impacts would be related to the dependency of the ranch upon BLM grazing and the economic health of each individual operation. Some would be severely impacted while others would see little effect.

Those operators with both a high dependency upon BLM grazing and a high debt load could be forced out of business or forced to find outside employment. However, prospects for outside employment in rural areas may not be good.

If a rancher were forced to quit the livestock business many intangible losses could also occur. Among these are the loss of opportunity to live a perferred lifestyle, loss of ancestral ties to the land, and the possible breakup of extended families and close circles of friends.

No specific information on attitudes toward the No Grazing Alternative has been collected. However, the reaction of ranchers and those who identify with them can be expected to be extremely negative. Even though many ranchers would experience little or no impact personally, they would likely sympathize with those who would experience adverse impacts. Given the current economic climate for the livestock industry, this alternative would likely be viewed as one more step in forcing small family ranchers out of business. It could be expected that widespread resentment toward BLM policies would grow and persist for the foreseeable future. This alternative would likely strengthen resolve that planning and management of the public lands be done at the local level.

APPENDIX O

DETAILED DISCUSSION OF AREAS BEING STUDIES FOR WILDERNESS

INTRODUCTION

Purpose and Need

The purpose of this study is to determine the suitability or nonsuitability of four areas for designation as wilderness, in accordance with the guidelines in the Wilderness Act of 1964. This Study/EIS is mandated by Sections 603 and 202 of the Federal Land Policy and Management Act of 1976 (FLPMA) which directs the BLM to review all public land for its wilderness potential. The review process developed by BLM has three phases: inventory, study, and reporting.

ENVIRONMENTAL SETTING

The four areas analyzed in this document are located in the Garnet Resource Area, Butte District in western Montana (see location map). Table O-1 lists the areas and their acreages.

Wales Creek, Gallagher Creek, and Hoodoo Mountain are located in Powell County. Quigg West is located in Granite County.

WILDERNESS INVENTORY

The inventory phase identified areas that have wilderness characteristics, as defined in the Wilderness Act of 1964, and designated them as Wilderness Study Areas (WSAs). Guidelines for conducting the inventory phase were set forth primarily in the BLM's Wilderness Inventory Handbook (USDI, BLM 1978).

Because the Wales Creek area was located on the proposed route of the Northern Tier Pipeline, it was inventoried first. The area was found to have high quality wilderness values and was designated a wilderness study area in May 1979. Inventories on the other three areas; Gallagher Creek, Hoodoo Mountain, and Quigg West; were completed in September 1981, and all three were designated as wilderness study areas.

A decision by the Secretary of the Interior on December 30, 1982 stated that areas of public land that were less than 5,000 acres in size or had split estate ownership were not subject to wilderness review under Section 603 of FLPMA. However, areas less than 5,000 acres in size could be studied for wilderness under authority of Section 202 of FLPMA. Based on this decision, the two areas that were less than 5,000 acres, Gallagher Creek (MT-074-151B) and Quigg West (MT-074-155), are being studied under authority of Section 202 of FLPMA, while Wales Creek (MT-074-150) and Hoodoo Mountain (MT-074-151A) are being studied under Section 603. Boundaries and land status of each WSA are illustrated on the WSA Land Status maps.

WILDERNESS STUDY

The purpose of the study phase of the BLM wilderness program is to determine which WSAs and 202 WSAs will be recommended as suitable for wilderness designation and which will not. The study was conducted in accordance with BLM planning regulations (43 CFR 1601) which state national policy and procedural guidance. The BLM's Wilderness Study Policy establishes procedures to ensure that suitability recommendations are based on full consideration of all multiple resource values of public lands, are consistent with established national policy, and assure the opportunity for all interested and affected members of the public and state and local governments to comment and be involved in the study process.

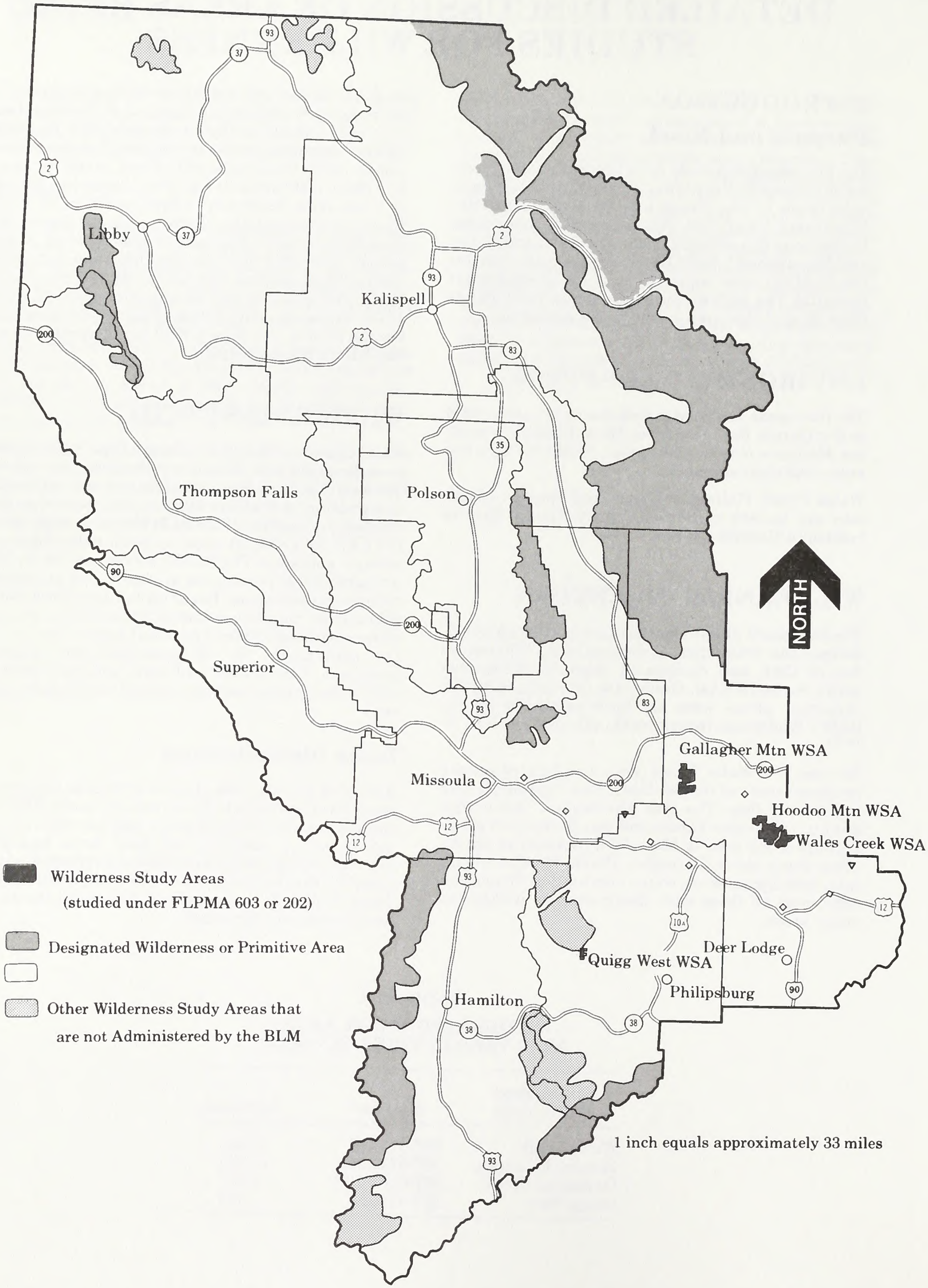
Issue Identification

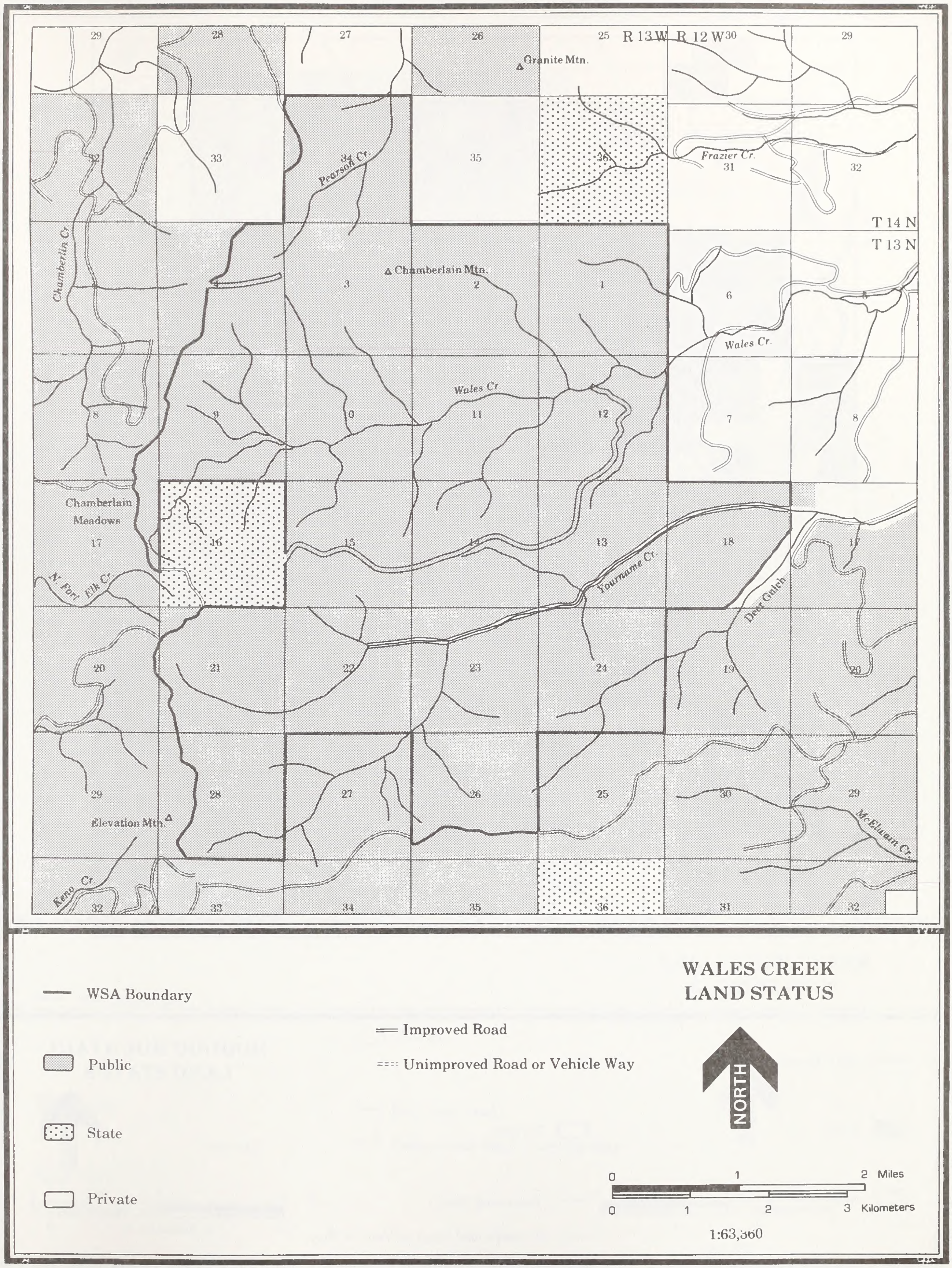
A scoping process took place to determine issues and associated conflicts to be addressed in the RMP for wilderness; this identification process was carried out at both a national and local level. Issues of national concern were identified and reflected, where possible, the development of the BLM's Wilderness Study Policy. At the local level, two major issues for wilderness were identified:

TABLE O-1

WILDERNESS STUDY AREAS ANALYZED IN THIS DOCUMENT

Wilderness Study Area	Number	Acreage
Wales Creek	MT-074-150	11,580
Hoodoo Mountain	MT-074-151A	11,380
Gallagher Creek	MT-074-151B	4,257
Quigg West	MT-074-155	520


93
37
2
Libby
37
2
93
Kalispell
200
2
83
35
Thompson Falls
Polson
90
200
Superior
93
83
NORTH
Gallagher Mtn WSA
200
Missoula
200
Hoodoo Mtn WSA
12
12
Wales Creek WSA
93
10A
12
Deer Lodge
Quigg West WSA
Philipsburg
90
Hamilton
38
38
93
1 inch equals approximately 33 miles
Wilderness Study Areas (studied under FLPMA 603 or 202)
Designated Wilderness or Primitive Area
Other Wilderness Study Areas that are not Administered by the BLM


R 13 W
R 12 W
T 14 N
T 13 N
Granite Mtn.
Chamberlain Mtn.
Elevation Mtn.
Chamberlain Meadows
Chamberlin Cr.
Pearson Cr.
Frazier Cr.
Wales Cr.
Wales Cr.
N. Fork Elk Cr.
Yourname Cr.
Deer Gulch
McElwain Cr.
Keno Cr.
29
28
27
26
25
30
29
32
33
34
35
36
31
32
4
3
2
1
6
5
8
9
10
11
12
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16
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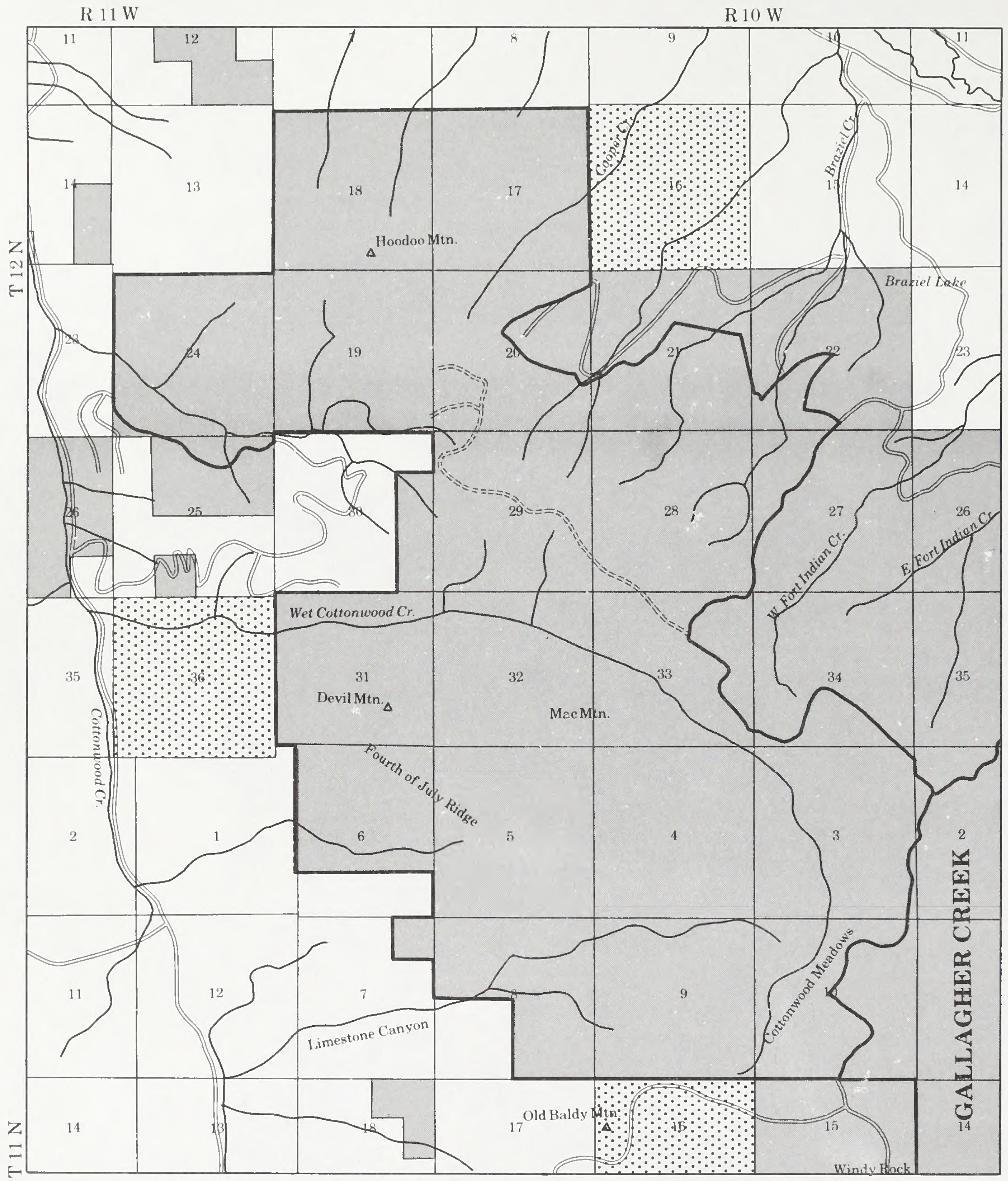
14
13
18
17
20
21
22
23
24
19
20
29
28
27
26
25
30
29
32
33
34
35
36
31
32
WSA Boundary
Public
State
Private
Improved Road
Unimproved Road or Vehicle Way
WALES CREEK
LAND STATUS
NORTH
0
1
2 Miles
0
1
2
3 Kilometers
1:63,360



HOODOO MOUNTAIN LAND STATUS

— WSA Boundary

▨ Public

☐ Private

⁙ State

═ Improved Road

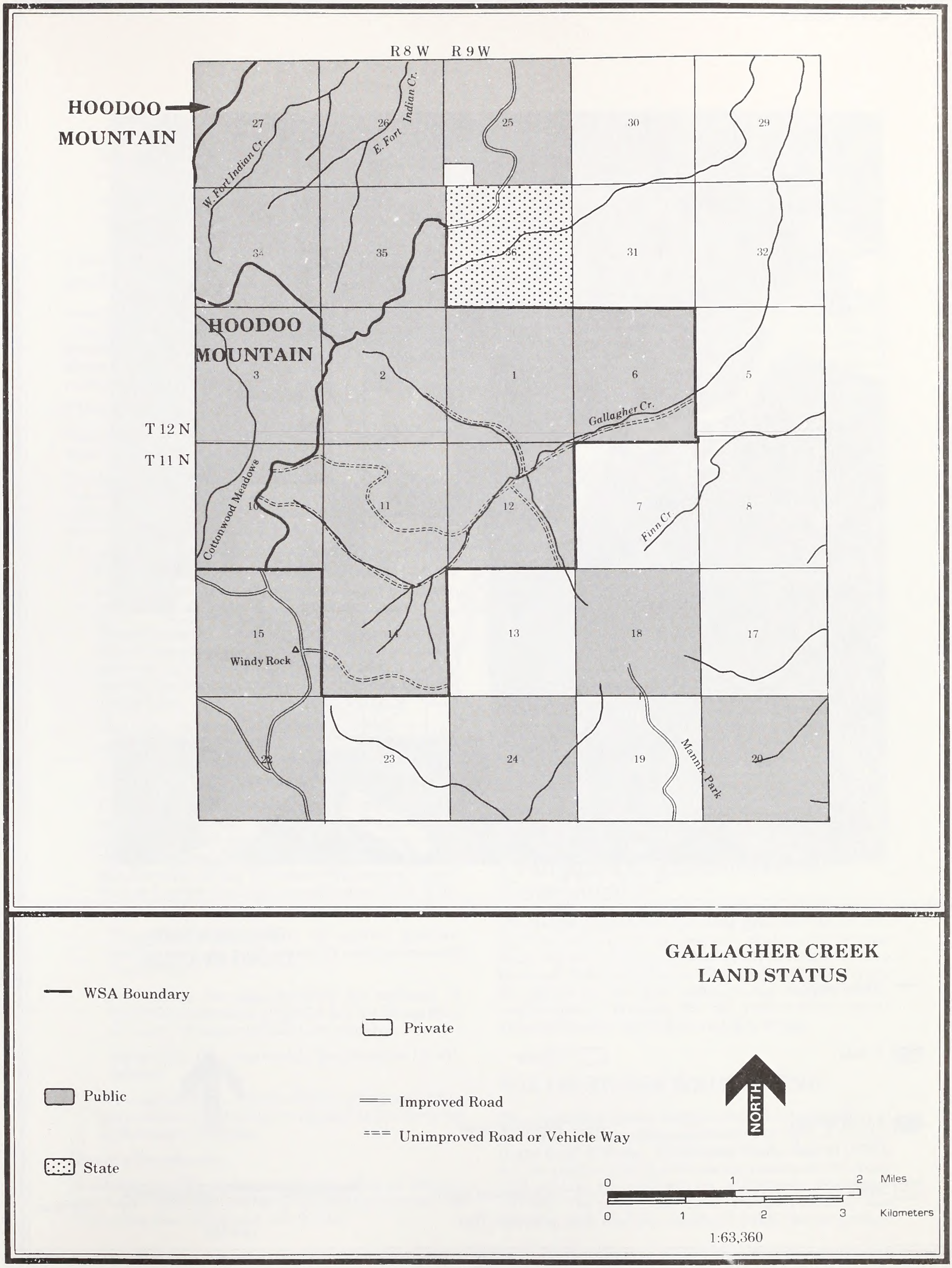
=== Unimproved Road or Vehicle Way

1:63,360

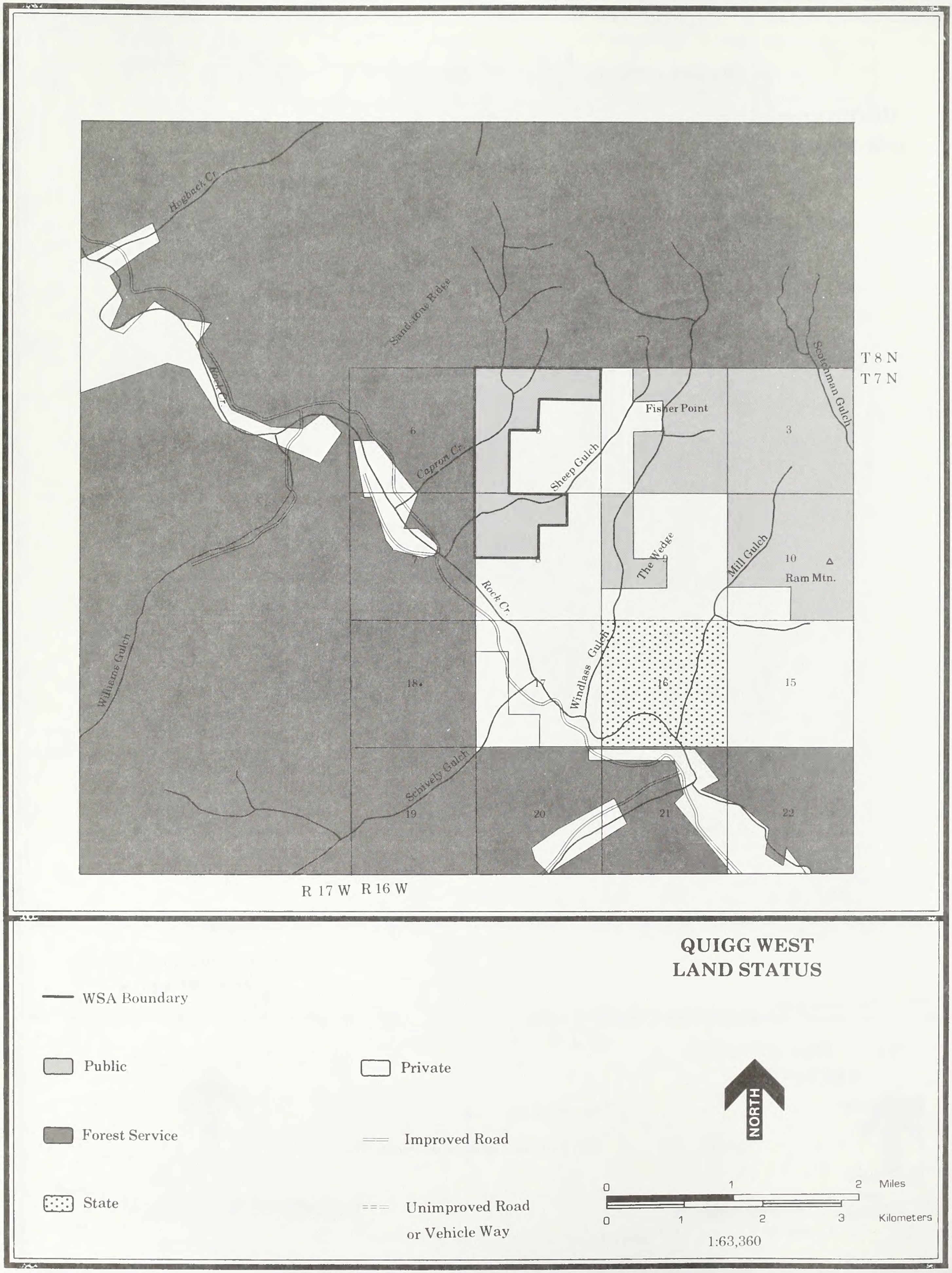
NORTH

0 1 Miles 2

0 1 Kilometers 2 3



GALLAGHER CREEK LAND STATUS



QUIGG WEST LAND STATUS

How much of the public land in each WSA or 202 WSA should be recommended to Congress as suitable for wilderness designation?

How will each area be managed if it is not designated as wilderness?

Development of Planning Criteria and Quality Standards

Based on the issues identified both nationally and locally, planning criteria and quality standards were developed in the BLM's Wilderness Study Policy to direct the procedures for evaluation of suitability and nonsuitability of each WSA.

Planning Criteria

The planning criteria were used to evaluate wilderness values and manageability.

Evaluation of wilderness values. This criterion considered the extent to which each of the following components contributed to the overall values of an area for wilderness purposes:

Mandatory Wilderness Characteristics. This component considered the quality of the area's naturalness, size, and outstanding opportunities for solitude or primitive recreation.

Supplemental Values. This component considered the presence or absence and the quality of optional wilderness characteristics such as ecological, geological, or other features of scientific, educational, scenic, or historical value.

Multiple Resource Benefits. This component considered the benefits to other resources and uses that would be ensured by wilderness designation of the area.

Diversity in the National Wilderness Preservation System. This component considered the extent to which wilderness designation of the area under study would contribute to expanding the diversity of the National Wilderness Preservation System from the standpoint of each of the following factors:

Expanding the diversity of natural systems and features, as represented by ecosystems and landforms.

Expanding the opportunities for solitude or primitive recreation within a day's driving time (5 hours) of major population centers.

Balancing the geographic distribution of wilderness.

Manageability. This criterion evaluated if the area could be effectively managed to preserve its wilderness character.

Quality Standards

In addition to the planning criteria, a set of quality standards were developed to ensure consistency in evaluating the WSAs and 202 WSAs.

Energy and Mineral Resource Values. This quality standard considered any identified or potential energy and mineral resource values.

Impacts on Other Resources. This quality standard considered the extent to which other resource values or uses of the area would be forgone or adversely affected as a result of wilderness designation.

Impact of Nondesignation on Wilderness Values. This quality standard considered the alternative use of the land under study if the area is not designated as wilderness, and the extent to which the wilderness values of the area would be forgone or adversely affected as a result of this use.

Public Comment. This quality standard considered comments received from interested and affected public at all levels.

Local, Social, and Economic Effects. This quality standard gave special attention to adverse or favorable social and economic effects that designation of the area would have on local areas.

Consistency with Other Plans. This quality standard considered consistency with officially approved and adopted resource related plans of other federal agencies, state and local governments, and Indian tribes.

Formulation of Alternatives

Each of the two WSAs and two 202 WSAs were evaluated using the planning criteria and quality standards. Wilderness alternatives were identified and a comparison of the existing and potential losses or gains for various resources were made in the context of the overall RMP alternatives. From this comparison, preliminary recommendations were made for each WSA and 202 WSA, and incorporated in the RMP alternatives.

Evaluation of Environmental Consequences

The fourth step of the planning process was to analyze the environmental impacts of the alternatives. Based upon the analysis, the Preferred Alternative in the draft EIS was selected. The draft EIS documents for public review and comment the results of the assessment of impacts for the preferred and other alternatives for the WSAs and 202 WSAs.

WILDERNESS REPORTING

The reporting phase begins after the completion of the draft Resource Management Plan/EIS. A preliminary final EIS and Wilderness Study Report (WSR) will be prepared that address the results of the study and contain the preliminary wilderness recommendations. The report will summarize the planning documents, EIS, and the results of public participation.

All recommendations for areas found suitable for wilderness designation, which were studied under both Section 202 and Section 603 of FLPMA, and recommendations of WSAs found nonsuitable for wilderness designation, which were studied under Section 603, will be reported through the Director of the BLM, the Secretary of Interior, and the President, to Congress. Recommendations for lands found nonsuitable for wilderness designation that were studied under Section 202 of FLPMA will not be reported beyond the Director of the BLM.

The Federal Land Policy and Management Act requires the Secretary of the Interior to report the recommendations to the President by October 21, 1991. The President has until October 21, 1993, to send the recommendations to Congress, as only Congress can designate wilderness areas.

The BLM's *Interim Management Policy and Guidelines for Land Under Wilderness Review* (USDI, BLM 1983a) currently serves as the principle document for managing the Wales Creek WSA and Hoodoo Mountain WSA until Congress acts. The two former WSAs, Gallagher Creek and Quigg West, are protected only under multiple resource authority. The goal of the Interim Management Policy (IMP) is to ensure that the wilderness qualities of each WSA or 202 WSA are unchanged at the time Congress makes its final decisions.

THE ALTERNATIVE SELECTED

The RMP developed five major alternatives that projected different combinations of public land uses and management practices in response to the planning issues. Within these five major alternatives, an alternative was developed for each area being studied for wilderness. As required by the Wilderness Study Policy, an alternative for all wilderness, no wilderness, and no action was examined for each area being studied. For some of the areas being studied, there is more than one no wilderness alternative, because the overall goals of the different RMP alternatives would project different management for the areas not recommended for wilderness. In addition one alternative describes a partial wilderness option for some WSAs or 202 WSAs.

CHAPTER 2

ALTERNATIVES, INCLUDING THE PROPOSED ACTION

INTRODUCTION

Chapter 2 describes the alternatives considered for each WSA or 202 WSA. In addition, a table at the end of this chapter summarizes the environmental impacts of alternatives for each WSA or 202 WSA.

Two alternatives must be considered because of the Council of Environmental Quality (CEQ) Regulation 1502.14 and requirements of the BLM's *Wilderness Study Policy*. They are:

> The No Wilderness Alternative (No Action) which recommends that no part of the WSA or 202 WSA is suitable for wilderness designation. If Congress selects this alternative, multiple use management would continue without any wilderness constraints.
>
> The All Wilderness Alternative which recommends the entire WSA or 202 WSA as suitable for wilderness designation.

In addition to the required alternatives, one or more partial wilderness alternatives can also be considered. Partial wilderness alternatives allow portions of a WSA or 202 WSA to be recommended either suitable or nonsuitable. Two guidelines were used to arrive at the partial wilderness alternatives; to resolve conflicts between wilderness and other resource uses, and to improve the long-term wilderness manageability of the WSA.

Resource conflicts would arise when other uses reduce opportunities for solitude or primitive recreation or impair natural values. The manageability of a study area is affected by the locations and types of inholdings, valid existing rights, the presence of cherrystemmed or other segmenting roads, the presence of identifiable boundaries, the potential to remove unneeded manmade features, and the type and location of outside influences.

Alternatives Eliminated From Detailed Study

All areas being studied for wilderness in the resource area were evaluated against the criteria for formal identification as potential Areas of Critical Environmental Concern (ACECs). None of the areas meet the criteria; so this alternative was eliminated from detailed study.

These areas are proposed in this RMP for special management without formal designation to protect wildlife, watershed, and extensive recreation values. Management would be similar under either formal or informal designation and any of the designations could adequately protect the resources involved. It was decided that only one designation needed to be examined in detail through the planning process and that an administrative commitment for special protective management best safeguarded the specific values in need of protection in each area while permitting needed management flexibility. Therefore, the other designations; such as Outstanding Natural Areas, Research Natural Areas, etc.; were not carried forward and examined in detail. The special management designation would allow formal designation at a later date should the need or opportunity arise.

DESCRIPTION OF THE ALTERNATIVES, INCLUDING THE PROPOSED ACTION

Alternative A: No Action or Current Management

Under this alternative, none of the four areas being studied would be recommended as suitable for wilderness designation. However, 28,457 acres including all WSAs and 202 WSAs would be recommended for special management to safeguard identified wildlife, watershed, and recreation values. (See the Alternatives maps in the map packet.)

Alternative B

This alternative recommends no areas as suitable for wilderness designation. In addition, no areas would be recommended for any special designation or management. This alternative emphasizes intensive resource management over preservation of the identified wilderness values. If this alternative were selected, multiple use management would occur on the 27,737 acres.

Alternative C

All four areas, consisting of 27,737 acres, would be recommended as suitable for wilderness designation under this alternative. Preservation of identified wilderness values over the intensive management of other resources which are or may be present in the area would be emphasized.

Alternative D

This alternative recommends that all of Quigg West and portions of Wales Creek, Gallagher Creek, and Hoodoo Mountain (14,350 acres) be designated as wilderness. The remaining 13,387 acres would remain available for multiple use management.

Alternative E (Preferred Alternative)

Under this alternative the 520-acre Quigg West 202 WSA would be recommended suitable for wilderness provided that the adjacent 60,500-acre Quigg unit administered by the Forest Service is also recommended suitable for wilderness designation. In addition 7,600 acres of Wales Creek, Hoodoo Mountain, and Gallagher Creek would be committed to special management to safeguard wildlife, watershed, and extensive recreation values.

WILDERNESS MANAGEABILITY

The manageability of the WSAs and study areas varies according to the physical characteristics of each unit and according to the management alternative selected. A summary of the manageability determination for each area follows.

Wales Creek

Wales Creek would only be manageable under Alternative D. The existence of the 40 mining claims and two cherrystemmed roads would preclude successfully managing the area as wilderness under Alternative C.

Hoodoo Mountain

Hoodoo Mountain is considered manageable as wilderness only under Alternative C. The narrow neck of land in the WSAs configuration under Alternative D, directly adjacent to privately owned land, would be impossible to manage as wilderness if the adjoining private lands were developed. Even with Alternative C, boundaries set on ownership lines adjacent to private land rather than on identifiable topographic breaks could be unwittingly crossed by motorized vehicles with resultant adverse effects on solitude and naturalness.

Gallagher Creek

Gallagher Creek would not be manageable as wilderness under any alternative. Its small size and topographical limitations preclude adequate screening of offsite impacts.

Quigg West

Under no alternative would Quigg West be considered manageable by itself. Its 520-acre size is too small to permit the maintenance of wilderness values if any potentially adverse development were to occur near its boundaries. Conversely, as a part of the larger Forest Service unit, Quigg West would be manageable under Alternatives C, D, and E.

IMPACTS OF THE ALTERNATIVES

Table O-2 summarizes the management actions associated with each alternative. Table O-3 summarizes the impacts of each alternative on Wales Creek; Table O-4, Hoodoo Mountain; Table O-5 Gallagher Creek; and Table O-6 Quigg West.

SELECTION OF THE PREFERRED ALTERNATIVE

The preferred alternative for each area was selected through the BLMs multiple use planning process by applying the criteria and quality standards contained in the BLM's wilderness study policy. The preferred alternative of the RMP, Alternative E, recommends one area, Quigg West, consisting of 520 acres, as suitable for wilderness designation as long as the adjacent 60,500-acre Quigg unit administered by the Forest Service is found suitable for wilderness designation through the Forest Service's forest planning process. The preferred alternative also recommends that 7,600 acres extracted from Wales Creek, Hoodoo Mountain, and Gallagher Creek be specially managed to protect wildlife, watershed, and extensive recreation values. The remaining 19,617 acres would be returned to multiple use management.

RATIONALE

The rationale for the selection of the preferred alternative for each area is summarized in Table O-7. A detailed discussion of the rationale for each area is found below.

Wales Creek

Under the preferred alternative, Wales Creek is recommended as not suitable for wilderness designation. The two parallel roads in the center essentially bisect the WSA and adversely affect the naturalness and solitude values available in the center core. Motorized vehicle traffic occurs on both roads. In addition, wilderness designation would seriously conflict with identified timber values, with development of the 40 mining claims in the WSA, and with future mining operations in an area of moderate to high value deposits of metallic minerals. Wilderness designation would not benefit either the ecotype representation or the spatial distribution of the National Wilderness Preservation System (NWPS). Wilderness designation would limit a full range of big game habitat management opportunities and could lead to a seasonal reduction in game animal populations. Under the preferred alternative, the Wales Creek drainage would be given special management protection which would tend to safeguard some wilderness characteristics but would allow for greater management flexibility, especially in wildlife habitat management.

Hoodoo Mountain

Under the preferred alternative, Hoodoo Mountain is recommended as not suitable for wilderness designation. Wilderness designation would conflict with harvest of significant amounts of prime old-growth forest land. The lack of significant supplemental values in this WSA makes it less attractive as a wilderness. Likewise, the ecotypes found in this WSA are well-represented in the NWPS and the supply of wilderness in the region is adequate. Designation of Hoodoo Mountain would not benefit either the ecotype representation or the spatial distribution of the NWPS. As in Wales Creek, designation would limit a full range of big game habitat management opportunities and could lead to a seasonal reduction in elk populations. Under the preferred alternative, the upper Cottonwood Creek drainage (1,700 acres) would be given special management protection which would tend to safeguard some wilderness characteristics but would allow for greater management flexibility, especially of elk habitat.

Gallagher Creek

Under the preferred alternative, Gallagher Creek is recommended as not suitable for wilderness designation. Wilderness designation would conflict with harvest of significant amounts of prime old-growth forest land and optimal use of the range resources. The 202 WSA's small size and susceptibility to outside adverse impacts upon its solitude values makes it unmanageable as wilderness in the long term. Wilderness designation would not benefit either the ecotype representation or the spatial distribution of the NWPS. Wilderness designation would limit a full range of big game habitat management opportunities especially for elk and could lead to a seasonal reduction in game animal populations. Under the preferred alternative, the 1,000-acre western portion would be given special management protection which would tend to safeguard some wilderness characteristics but would allow for greater management flexibility, especially of elk habitat.

Quigg West

Under the preferred alternative, Quigg West is recommended for wilderness designation if the adjacent Forest Service RARE II unit, Quigg, is also recommended suitable for wilderness. This small tack-on, although it would not aid in the manageability or boundary configuration of the Forest Service unit, would significantly enhance the scenic quality, diversity, and wilderness quality of the adjoining Forest Service portion. In addition wilderness designation would best protect the bighorn sheep habitat found there.

TABLE 0-2

DESCRIPTION OF MANAGEMENT ACTIVITY BY ISSUE/BY ALTERNATIVE

ISSUE	ALTERNATIVE A — NO ACTION	ALTERNATIVE B
Wilderness Values	Wilderness values would be maintained when consistent with wildlife, watershed and dispersed recreation needs on 27,737 acres.	Wilderness values will not be emphasized; may be incidentally preserved to the extent that there is no conflict with development of other resources on 27,737 acres.
Road Construction	Roads will not be constructed.	Roads may be constructed for a variety of purposes, including minerals development, on all 27,737 acres.
Oil and Gas Leasing	Leases issued with stipulations prohibiting surface occupancy on approximately 27,737 acres.	Leases issued with standard stipulations on 27,737 acres.
Mining	Mining allowed on 27,737 acres. Withdrawal for some lands considered.	Mining allowed on 27,737 acres.
Recreation Use	Motorized vehicle use limited to existing roads and trails on all 27,737 acres; exceptions may be permitted for snowmobile use. No new recreation facilities will be built; two existing picnic sites at Hoodoo Mountain would continue to be used. About 12 miles of roads and trails would generally remain open to public.	Same as Alternative A. Additional roads would be developed and likely remain open at least seasonally for public use.
Cultural Resource Protection	Significant sites identified and managed for nonimpairment.	Same as Alternative A.
Timber Harvest	No timber harvest on 27,737 acres.	Timber may be harvested on all 27,737 acres.
Grazing Management	Permitted where established and consistent with goals for area.	All 27,737 acres would be available for livestock grazing.
Insect, forest disease and weed control	Herbicides and insecticides may be used on all 27,737 acres if consistent with management goals.	Herbicides and insecticides may be considered for use on all 27,737 acres.
Fire Control	All fires not fitting prescribed burn parameters will be suppressed on all 27,737 acres.	Same as Alternative A.

ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E — PREFERRED
Preserve wilderness values even if other resources cannot be developed on 27,737 acres.	Same as Alternative B on 13,387 acres. Same as Alternative C on 14,350 acres.	Same as Alternative B on 19,617 acres. Same as Alternative C on 520 acres.
No new roads will be constructed on 27,737 acres.	Same as Alternative B on 13,387 acres. Same as Alternative C on 14,350 acres.	Same as Alternative A on 8,120 acres. Same as Alternative B on 19,617 acres.
No new oil and gas leases will be issued on 27,737 acres.	Same as Alternative B on 13,387 acres except special stipulations incorporated. Same as Alternative C on 14,350 acres.	Same as Alternative A on 7,600 acres and 520 acres. 19,617 acres leased with special stips. Same as Alternative C on 520 acres. Same as Alterntive B on 19,617 acres.
Mining allowed subject to reasonable conditions to protect wilderness values on 800 acres of existing claims. Remainder of area withdrawn from mineral entry and development.	Same as Alternative B on 13,387 acres. No new claims on 14,350 acres.	Same as Alternative A on 7,600 acres. Same as Alternative B on 19,617 acres. Same as Alternative C on 520 acres.
All 27,737 acres closed to ORV use; no exception for snowmobile use. No recreation facilities will be built; two existing picnic sites at Hoodoo Mountain would continue to be used. About 7 miles of cherry stem road in Wales Creek remain open; 5.2 miles of vehicle ways closed.	14,350 acres closed to ORV use; ORV use on 13,387 acres limited to open roads and trails. No recreation facilities will be built; two existing picnic sites at Hoodoo Mountain would continue to be used. About 12 miles of roads and trails would generally remain open to public.	27,217 acres in a limited ORV use category. 520 acres closed. No recreation facility developments will be built; two existing picnic sites in Hoodoo Mtn. would continue to be used. About 12 miles of roads and trails would generally remain open to public.
Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
No timber harvest on 27,737 acres.	Harvest timber on 13,387 acres consistent with wildlife habitat management objectives. Same as Alternative C on 14,350 acres.	Same as Alternative A on 8,120 acres. Same as Alternative B on 19,617 acres.
Permitted where established prior to designation. New improvements can be constructed only when necessary to protect wilderness values.	Same as Alternative A on 13,387 acres. Same as Alternative C on 14,350 acres.	Same as Alternative A on 27,217 acres. Same as Alternative C on 520 acres.
Herbicides and insecticides will not be used on 27,737 acres.	Same as Alternative B on 13,387 acres. Same as Alternative C on 14,350 acres.	Same as Alternative A on 7,600 acres. Same as Alternative B on 19,617 acres. Same as Alternative C on 520 acres.
Fire suppression will be compatible with wilderness management objectives on 27,737 acres.	Same as Alternative A on 13,387 acres. Same as Alternative C on 14,350 acres.	Same as Alternative A on 27,217 acres. Same as Alternative C on 520 acres.

ISSUE	ALTERNATIVE A —	ALTERNATIVE B
Wildlife Habitat	Wildlife habitat improvement projects permitted on 27,737 acres if consistent with management goals.	Wildlife habitat improvement projects permitted on 27,737 acres.
Predator Control	No restriction on machine based hunting (vehicle and aircraft hunting allowed) but limited by terrain and lack of roads.	Same as Alternative A except additional access likely.
Economic Values	No emphasis on dollar return from resources because development is deferred.	Emphasis on resource development and use to receive highest dollar return on 27,737 acres.
Utility and Transportation Corridors	Restrictions on corridors on 27,737 acres.	No restrictions on corridors on 27,737 acres.

ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E —
Wildlife habitat improvement projects generally not permitted on 27,737 acres. Likely increase in wildlife habitat manipulation on areas immediately adjacent to wilderness areas would occur.	Same as Alternative A on 13,387 acres. Same as Alternative C on 14,350 acres.	Same as Alternative A on 27,217 acres. Same as Alternative C on 520 acres.
All vehicles and aircraft other than by Fish and Wildlife predator control unit would be prohibited.	Same as Alternative A on 13,387 acres. Same as Alternative C on 14,350 acres.	Same as Alternative A on 27,217 acres. Same as Alternative C on 520 acres.
No emphasis on dollar return from resources. Resource developed only when wilderness values can be enhanced or preserved on 27,737 acres.	Emphasis is on resource use with wildlife habitat objectives on 13,387 acres. Same as Alternative C on 14,350 acres.	No emphasis on dollar return from 8,120 acres. Emphasis is on resource use consistent with wildlife habitat objectives on 19,617 acres. Preserve basic undeveloped status on 7,600 acres.
Exclusion of corridors on 27,737 acres.	Same as Alternative B on 13,387 acres. Same as Alternative C on 14,350 acres.	Same as Alternative A on 7,600 acres. Same as Alternative B on 19,617 acres. Same as Alternative C on 520 acres.

TABLE 0-3

SUMMARY OF IMPACTS OF EACH ALTERNATIVE ON WALES CREEK WSA

ISSUE	ALTERNATIVE A	ALTERNATIVE B
Wilderness	Special management protects wilderness values in short term on 11,500 acres.	Potential short and long-term loss of naturalness and solitude on 11,580 acres.
Soil and Water	Surface disturbance with concurrent impacts on wilderness possible in long term if in accordance with special management goals. If in accordance with special management goals, surface disturbance would adversely affect sedimentation and water in creeks.	Surface disturbance would adversely affect water quality, sedimentation, and hot springs resource.
Energy and Minerals	Exploration and development somewhat restricted by special management on 11,580 acres.	No impact.
Lands	Possible corridor routes restricted by special management on 11,580 acres.	No impact.
Recreation	Some increase in primitive recreation opportunities. Some impact on scenery and specific sites if surface disturbance allowed on 11,580 acres.	Decrease in opportunities for primitive recreation and increase in motorized recreation on 11,580 acres.
Cultural	Some disturbance of cultural values possible if surface disturbance allowed. Activity stimulates discovery of cultural sites on 11,580 acres.	Greater disturbance of cultural values possible. More opportunity to discover cultural sites on 11,580 acres.
Visual	If surface disturbance allowed, changes possible in landscape.	Short and long-term evident change in the landscape.
Forest Resources	CFL on 10,850 acres not available for harvest.	789 mbf annual harvest. Timely control of forest insects and diseases.
Range	118 potential AUMs would not be available for livestock use. Special management would maintain or improve habitat on 11,580 acres.	121 AUMs would be available for livestock use.
Wildlife and Fisheries	If surface disturbance allowed, potential for habitat destruction. No economic gains from 118 potential AUMs and 789 mbf timber harvest.	Wildlife on 11,580 acres possibly displaced. Short-term impacts to fisheries habitat caused by road construction.
Socioeconomic	Income from mining and oil and gas leasing decreased on 11,380 acres.	7 primary jobs and some secondary jobs created in forest products industry. Increase in ranching, mining, and timber industries income.

ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E
Wilderness qualities best preserved on 11,580 acres. Due to 40 mining claims and 2 roads, area not manageable with this alternative.	Same as Alternative C on 4,900 acres and same as Alternative B on 6,680 acres. 4,900 acres are manageable for wilderness.	Same as Alternative A on 4,900 acres and same as Alternative B on 6,680 acres.
Resources best protected from surface disturbance with this alternative.	Short-term increases in sedimentation in streams on 6,680 acres. Same as Alternative C on 4,900 acres.	Same as Alternative A on 4,900 acres and same as Alternative B on 6,680 acres.
New mineral entry or lease prohibited. Existing 40 claims and oil and gas leases honored. Loss of 11,580 acres of moderate to high value metallic mineral resource.	Loss of 4,900 acres of moderate value metallic mineral resource.	Loss of 4,900 acres of moderate value metallic mineral resource. Special stipulations on 6,680 acres.
Long-term decrease in possible corridor routes on 11,580 acres.	Long-term decrease in possible corridor routes on 4,900 acres.	Possible corridor routes restricted by special management on 4,900 acres.
One mile of road closure causes loss of motorized recreation. Number of visitors likely to remain the same. Enhanced opportunity for nonmotorized recreation on 11,580 acres.	Same as Alternative C on 4,900 acres and same as Alternative B on 6,680 acres.	Same as Alternative A on 4,900 acres and same as Alternative B on 6,680 acres.
Less surface disturbance means less cultural site disturbance. Possibly some site disturbance by recreationists.	Same as Alternative C on 4,900 acres and same as Alternative B on 6,680 acres.	Same as Alternative A on 4,900 acres and same as Alternative B on 6,680 acres.
No impact.	No impact on 4,900 acres. Same as Alternative B on 6,680 acres.	No impact on 4,900 acres. Same as Alternative B on 6,680 acres.
CFL on 10,850 acres not available for harvest.	Annual harvest reduced by 489 mbf by wilderness on 4,900 acres.	Annual harvest reduced by 489 mbf by special management on 4,900 acres.
Same as Alternative A.	118 potential AUMs would not be available for livestock use.	118 potential AUMs would not be available for livestock use.
Seasonal shift of elk, deer and moose away from area to utilize food made available by management on adjacent lands. Greater number of animals in area during hunting season.	Same as Alternative C on 4,900 acres and same as Alternative B on 6,680 acres.	Same as Alternative A on 4,900 acres and same as Alternative B on 6,680 acres.
No economic gains from 118 potential AUMs, 789 mbf harvested, and mineral activity on 11,580 acres. Insignificant loss of recreation income from closure of 1 mile of road.	Economic gains from 350 mbf and 40 mining claims. 4 primary and some secondary forest products jobs created. Income from 118 AUMs not available.	Economic gains from 350 mbf and 40 mining claims. 4 primary and some secondary forest products jobs created. Income from 118 AUMs not available.

TABLE 0-4
SUMMARY OF IMPACTS OF EACH ALTERNATIVE ON HOODOO MOUNTAIN WSA

ISSUE	ALTERNATIVE A	ALTERNATIVE B
Wilderness	Special management protects wilderness values in short term on 11,380 acres. Surface disturbance with concurrent impacts on wilderness possible in long term if in accordance with special management goals.	Potential short and long-term loss of naturalness and solitude on 11,380 acres.
Soil and Water	If in accordance with special management goals, surface disturbance would adversely affect sedimentation and water in creeks.	Surface disturbance would adversely affect water quality and sedimentation especially in the wet areas of Cottonwood Meadows.
Energy and Minerals	Exploration and development somewhat restricted by special management on 11,380 acres.	No impact.
Lands	Possible corridor routes restricted by special management on 11,380 acres.	No impact.
Recreation	Some increase in primitive recreation opportunities. Some impact on scenery and specific sites if surface disturbance allowed on 11,380 acres.	Decrease in opportunities for primitive recreation and increase in motorized recreation on 11,380 acres.
Cultural	Some disturbance of cultural values possible if surface disturbance allowed. Activity stimulates discovery of cultural sites on 11,380 acres.	Greater disturbance of cultural values possible. More opportunity to discover cultural sites on 11,380 acres.
Visual	If surface disturbance allowed, changes possible in landscape.	Short and long-term evident change in the landscape.
Forest Resources	CFL on 9,078 acres not available for harvest.	635 mbf annual harvest. Timely control of forest insects and diseases.
Range	39 potential AUMs would not be available for livestock use.	184 AUMs would be available for livestock use.
Wildlife and Fisheries	Special management would maintain or improve habitat on 11,380 acres. If surface disturbance allowed, potential for habitat destruction.	Wildlife on 11,380 acres possibly displaced. Short-term impacts to fisheries habitat caused by road construction.
Socioeconomic	No economic gains from 39 potential AUMs and 635 mbf timber harvest. Income from mining and oil and gas leasing decreased on 11,380 acres.	6 primary jobs and some secondary jobs created in forest products industry. Increase in ranching, mining and timber industries income.

ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E
Wilderness qualities best preserved on 11,380 acres. Area is manageable with this alternative.	Same as Alternative C on 5,873 acres and same as Alternative B on 5,507 acres. Area not developed if adjoining private lands developed.	Same as Alternative A on 1,700 acres and same as Alternative B on 9,680 acres.
Resources best protected from surface disturbance with this alternative.	Short-term increases in sedimentation in streams on 5,507 acres. Same as Alternative C on 5,873 acres.	Same as Alternative A on 1,700 acres and same as Alternative B on 9,680 acres.
New mineral entry or lease prohibited. Existing oil and gas leases honored. Loss of 11,380 acres of low to moderate value metallic mineral resource.	Loss of 5,873 acres of low to moderate value metallic mineral resource.	Loss of 1,700 acres of low to moderate value metallic mineral resource. Special stipulations on 9,680 acres.
Long-term decrease in possible corridor routes on 11,380 acres.	Long-term decrease in possible corridor routes on 5,873 acres.	Possible corridor routes restricted by special management on 1,700 acres.
4.1 miles of road closure cause loss of motorized recreation. Number of visitors likely to remain the same. Enhanced opportunity for nonmotorized recreation on 11,380 acres.	Same as Alternative C on 5,873 acres and same as Alternative B on 5,507 acres.	Same as Alternative A on 1,700 acres and same as Alternative B on 9,680 acres.
Less surface disturbance means less cultural site disturbance. Possibly some site disturbance by recreationists.	Same as Alternative C on 5,873 acres and same as Alternative B on 5,507 acres.	Same as Alternative A on 1,700 acres and same as Alternative B on 9,680 acres.
No impact.	No impact on 5,873 acres. Same as Alternative B on 5,507 acres.	No impact on 1,700 acres. Same as Alternative B on 9,680 acres.
CFL on 9,078 acres not available for harvest.	Annual harvest reduced by wilderness on 5,873 acres.	Annual harvest reduced by special management on 1,700 acres.
Same as Alternative A.	39 potential AUMs would not be available for livestock use.	39 potential AUMs would not be available for livestock use.
Seasonal shift of elk and deer away from area to utilize food made available by management on adjacent lands. Greater number of animals in area during hunting season.	Same as Alternative C on 5,873 acres and same as Alternative B on 5,507 acres.	Same as Alternative A on 1,700 acres and same as Alternative B on 9,680 acres.
No economic gains from 39 potential AUMs, 635 mbf harvested, and mineral activity on 11,380 acres. Insignificant loss of recreation income from closure of 4.1 miles of roads.	Economic gains from oil and gas leasing and mining. 4 primary and some secondary forest products jobs created. Income from 39 AUMs not available.	Economic gains from forest harvest, oil and gas leasing and mining. 5 primary and some secondary forest products jobs created. Income from 39 AUMs not available.

TABLE 0-5

SUMMARY OF IMPACTS OF EACH ALTERNATIVE ON GALLAGHER CREEK 202 WSA

ISSUE	ALTERNATIVE A	ALTERNATIVE B
Wilderness	Special management protects wilderness values in short term on 4,257 acres. Surface disturbance with concurrent impacts on wilderness possible in long term if in accordance with special management goals.	Potential short and long term loss of naturalness and solitude on 4,257 acres.
Soil and Water	If in accordance with special management goals, surface disturbance would adversely affect sedimentation and water in creeks.	Surface disturbance would adversely affect water quality and sedimentation.
Energy and Minerals	Exploration and development somewhat restricted by special management on 4,257 acres.	No impact.
Lands	Possible corridor routes restricted by special management on 4,257 acres.	No impact.
Recreation	Some increase in primitive recreation opportunities. Some impact on scenery and specific sites if surface disturbance allowed on 4,257 acres.	Decrease in opportunities for primitive recreation and increase in motorized recreation on 4,257 acres.
Cultural	Some disturbance of cultural values possible if surface disturbance allowed. Activity stimulates discovery of cultural sites on 4,257 acres.	Greater disturbance of cultural values possible. More opportunity to discover cultural sites on 4,257 acres.
Visual	If surface disturbance allowed, changes possible in landscape.	Short and long-term evident change in the landscape.
Forest Resources	CFL on 3,274 acres not available for harvest.	249 mbf annual harvest. Timely control of forest insects and diseases.
Range	154 potential AUMs would not be available for livestock use.	154 AUMs would be available for livestock use.
Wildlife and Fisheries	Special management would maintain or improve habitat on 4,257 acres. If surface disturbance allowed, potential for habitat destruction.	Wildlife on 4,257 acres possibly displaced. Short-term impacts to fisheries habitat caused by road construction.
Socioeconomic	No economic gains from 154 potential AUMs and 249 mbf timber harvest. Income from mining and oil and gas leasing decreased on 4,257 acres.	3 primary jobs and some secondary jobs created in forest products industry. Increase in ranching, mining, and timber industries income.

ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E
Wilderness qualities best preserved on 4,257 acres. Due to small size and topographical limitations, area not manageable for this alternative.	Same as Alternative C on 3,577 acres and same as Alternative B on 680 acres. The area would not be manageable as wilderness due to small size and topographical limitations.	Same as Alternative A on 1,000 acres and same as Alternative B on 3,257 acres.
Resources best protected from surface disturbance with this alternative.	Short-term increases in sedimentation in streams on 680 acres. Same as Alternative C on 3,577 acres.	Same as Alternative A on 1,000 acres and same as Alternative B on 3,257 acres.
New mineral entry or lease prohibited. Existing oil and gas leases honored. Loss of 4,257 acres of low value metallic mineral resource.	Loss of 3,577 acres of low to moderate value metallic mineral resource.	Loss of 1,000 acres of low value metallic mineral resource. Special stipulations on 3,257 acres.
Long-term decrease in possible corridor routes on 4,257 acres.	Long term decrease in possible corridor routes on 3,577 acres.	Possible corridor routes restricted by special management on 1,000 acres.
Slight loss of opportunity for motorized recreation. Number of visitors likely to remain the same. Enhanced opportunity for nonmotorized recreation on 4,257 acres.	Same as Alternative C on 3,577 acres and same as Alternative B on 680 acres.	Same as Alternative A on 1,000 acres and same as Alternative B on 3,257 acres.
Less surface disturbance means less cultural site disturbance. Possibly some site disturbance by recreationists.	Same as Alternative C on 3,577 acres and same as Alternative B on 680 acres.	Same as Alternative A on 1,000 acres and same as Alternative B on 3,257 acres.
No impact.	No impact on 3,577 acres. Same as Alternative B on 680 acres.	No impact on 1,000 acres. Same as Alternative B on 3,257 acres.
CFL on 3,274 acres not available for harvest.	Annual harvest reduced by wilderness on 3,577 acres.	Annual harvest reduced by special management on 1,000 acres.
Same as Alternative A.	154 potential AUMs would not be available for livestock use.	154 potential AUMs would not be available for livestock use.
Seasonal shift of elk and deer away from area to utilize food made available by management on adjacent lands. Greater number of animals in area during hunting season.	Same as Alternative C on 3,577 acres and same as Alternative B on 680 acres.	Same as Alternative A on 1,000 acres and same as Alternative B on 3,257 acres.
No economic gains from 154 potential AUMs, 249 mbf harvested, and mineral activity on 4,257 acres. Insignificant loss of recreation income dependent on motorized vehicles.	Economic gains from oil and gas leasing and mining. No primary or secondary forest products jobs created. No income from 154 AUMs.	Economic gains from forest harvest, oil and gas leasing, and mining. Some primary and some secondary forest products jobs created. Income from 118 AUMs not available.

TABLE 0-6

SUMMARY OF IMPACTS OF EACH ALTERNATIVE ON QUIGG WEST 202 WSA

ISSUE	ALTERNATIVE A	ALTERNATIVE B
Wilderness	Special management protects wilderness values in short term on 520 acres. Surface disturbance with concurrent impacts on wilderness possible in long term if in accordance with special management goals.	Potential short and long-term loss of naturalness and solitude on 520 acres.
Soil and Water	If in accordance with special management goals, surface disturbance would adversely affect sedimentation and water in creeks.	Surface disturbance would adversely affect water quality and sedimentation.
Energy and Minerals	Exploration and development somewhat restricted by special management on 520 acres.	No impact.
Lands	Possible corridor routes restricted by special management on 520 acres.	No impact.
Recreation	Some increase in primitive recreation opportunities. Some impact on scenery and specific sites if surface disturbance allowed on 520 acres.	Decrease in opportunities for primitive recreation and increase in motorized recreation on 520 acres.
Cultural	Some disturbance of cultural values possible if surface disturbance allowed. Activity stimulates discovery of cultural sites on 520 acres.	Greater disturbance of cultural values possible. More opportunity to discover cultural sites on 520 acres.
Visual	If surface disturbance allowed, changes possible in landscape.	Short and long-term evident change in the landscape.
Forest Resources	CFL on 284 acres not available for harvest.	15 mbf annual harvest. Timely control of forest insects and diseases.
Range	20 potential AUMs would not be available for livestock use.	20 AUMs would be available for livestock use.
Wildlife and Fisheries	Special management would maintain or improve habitat on 520 acres. If surface disturbance allowed, potential for habitat destruction and displacement of Bighorn sheep herd.	Wildlife on 520 acres possibly displaced. Short-term impacts to fisheries habitat caused by road construction. Probable loss of Bighorn sheep herd.
Socioeconomic	No economic gains from 20 potential AUMs and 15 mbf timber harvest. Income from oil and gas leasing decreased on 520 acres.	Some primary jobs and some secondary jobs created in forest products industry. Increase in ranching, mining, and timber industries income.

ALTERNATIVE C	ALTERNATIVE D	ALTERNATIVE E
Wilderness qualities best preserved on 520 acres. Area is not manageable by itself, only manageable in conjunction with adjacent FS RARE II area.	Wilderness qualities best preserved on 520 acres. Area is not manageable by itself, only manageable in conjunction with adjacent FS RARE II area.	Wilderness qualities best preserved on 520 acres. Area is not manageable by itself, only manageable in conjunction with adjacent FS RARE II area.
Resources best protected from surface disturbance with this alternative.	Resources best protected from surface disturbance with this alternative.	Resources best protected from surface disturbance with this alternative.
New mineral entry or lease prohibited. Existing oil and gas leases honored. Loss of 520 acres of moderate value metallic mineral resource.	New mineral entry or lease prohibited. Existing oil and gas leases honored. Loss of 520 acres of moderate value metallic mineral resource.	New mineral entry or lease prohibited. Existing oil and gas leases honored. Loss of 520 acres of moderate value metallic mineral resource.
Long-term decrease in possible corridor routes on 520 acres.	Long-term decrease in possible corridor routes on 520 acres.	Long-term decrease in possible corridor routes on 520 acres.
Area sees no motorized recreation uses. No impact on motorized recreation. Number of visitors likely to remain the same. Enhanced opportunity for nonmotorized recreation on 520 acres.	Area sees no motorized recreation uses. No impact on motorized recreation. Number of visitors likely to remain the same. Enhanced opportunity for nonmotorized recreation on 520 acres.	Area sees no motorized recreation uses. No impact on motorized recreation. Number of visitors likely to remain the same. Enhanced opportunity for nonmotorized recreation on 520 acres.
Less surface disturbance means less cultural site disturbance. Possibly some site disturbance by recreationists.	Less surface disturbance means less cultural site disturbance. Possibly some site disturbance by recreationists.	Less surface disturbance means less cultural site disturbance. Possibly some site disturbance by recreationists.
No impact.	No impact.	No impact.
CFL on 284 acres not available for harvest.	CFL on 284 acres not available for harvest.	CFL on 284 acres not available for harvest.
Same as Alternative A.	Same as Alternative A.	Same as Alternative A.
Best protection for Bighorn sheep. Seasonal shift of elk and deer away from area to utilize food made available by management of adjacent lands.	Best protection for Bighorn sheep. Seasonal shift of elk and deer away from area to utilize food made available by management of adjacent lands.	Best protection for Bighorn sheep. Seasonal shift of elk and deer away from area to utilize food made available by management of adjacent lands.
No economic gains from 20 potential AUMs, 15 mbf harvested, and mineral activity on 520 acres. No loss of recreation income.	No economic gains from 20 potential AUMs, 15 mbf harvested, and mineral activity on 520 acres. No loss of recreation income.	No economic gains from 20 potential AUMs, 15 mbf harvested, and mineral activity on 520 acres. No loss of recreation income.

TABLE O-7

SUMMARY OF THE RATIONALE FOR THE SELECTION OF THE PREFERRED ALTERNATIVE FOR THE GARNET RESOURCE AREA WILDERNESS EIS

Area	Preferred Alternative	Rationale
Wales Creek	Nonsuitable for wilderness designation, special management for Wales Creek drainage.	The two roads in the center of the WSA make management as wilderness difficult. Conflict with identified mining values, timber values, and with wildlife management goals. No advantage to NWPS. Protection of some wilderness values through special management which gives more management flexibility.
Hoodoo Mountain	Nonsuitable for wilderness designation, special management for upper portion of Cottonwood Creek drainage.	Conflict with timber values and with wildlife management goals. No advantage to NWPS. Nothing of supplemental value significance in the WSA. Protection of some wilderness values through special management which gives more management flexibility.
Gallagher Creek	Nonsuitable for wilderness designation, special management for western portion of area.	The 202 WSA's small size would make management as wilderness difficult. No advantage to NWPS. Conflict with timber and range values. Protection of some wilderness values through special management which gives more management flexibility.
Quigg West	Suitable for wilderness designation in conjunction with adjacent FS Quigg RARE II unit.	Tack-on would enhance diversity, scenic quality, and wilderness quality of adjoining FS unit. Designation would protect bighorn sheep population.

CHAPTER 3

AFFECTED ENVIRONMENT

WALES CREEK WSA (MT-074-150)

General Description

The Wales Creek WSA is located in Powell County approximately 40 miles due east of Missoula, Montana in the Garnet Range. There are no state or other federal lands within the WSA. However, several cherrystemmed roads project into it. Boundaries are formed by private, state, and other BLM lands.

Wilderness Resources

Size

The Wales Creek WSA contains 11,580 acres of public lands.

Naturalness

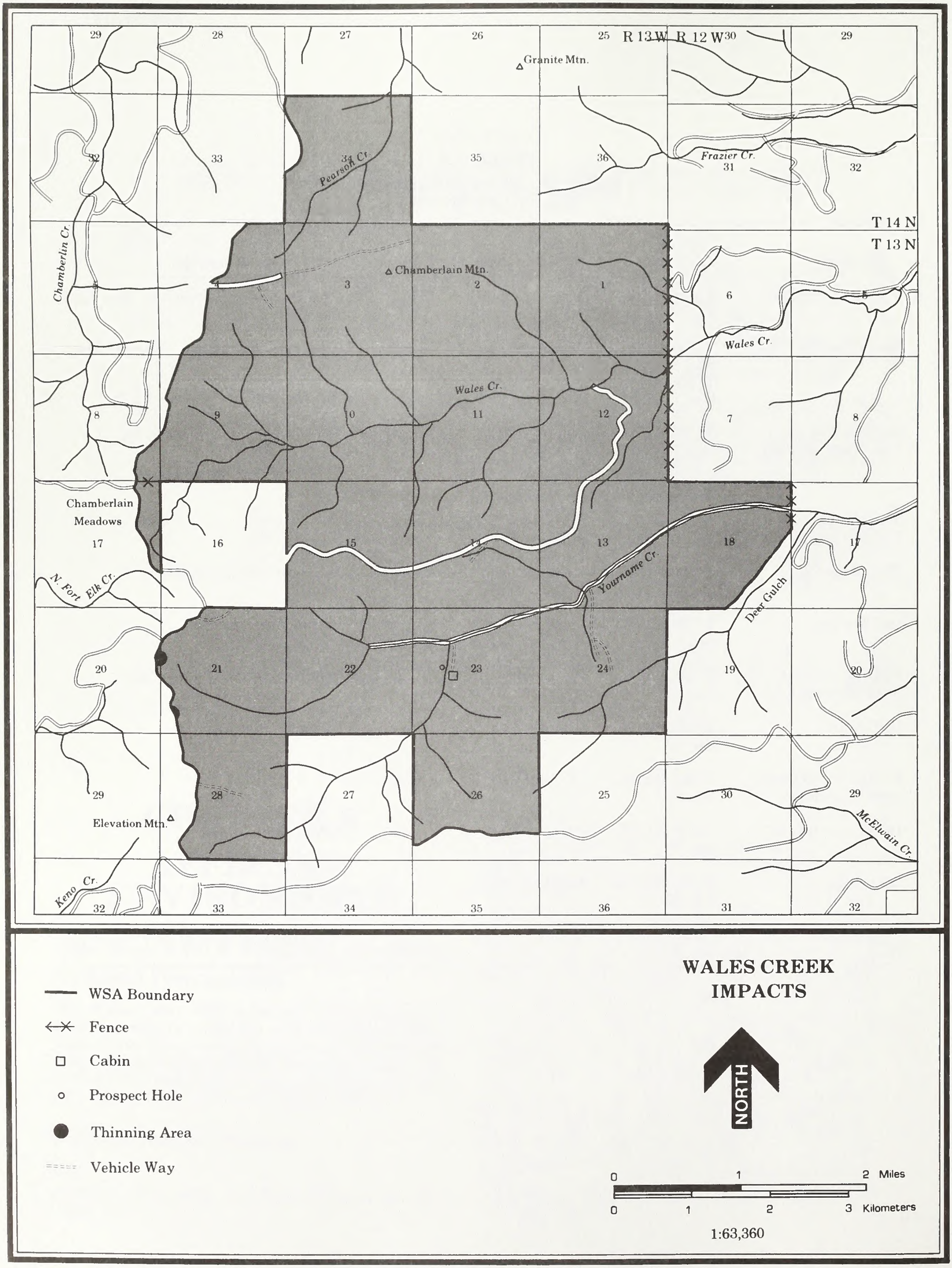
Wales Creek WSA encompasses the last major unroaded drainage in the western Garnet Range. Wales Creek WSA is surrounded by extensive logging and development, yet it gives the visitor the impression of being an untouched wilderness.

The few minor traces of human activities detailed in Table O-8 and the Wales Creek WSA Impacts map are largely of minor significance. These include vehicle ways, traces of historic mining, and an early 1970's tree thinning project adjacent to the western boundary road. The two significant signs of human presence include the Wales Creek fire road and the Yourname Creek Road, which are found a half mile away from each other extending through the middle of the WSA. These two roads adversely affect the wilderness experience of visitors expecting to find a natural appearing area and effectively bisect the WSA into two parts. The vast majority of the WSA, however, contains no evidence of human influence. None of the human imprints, either by themselves or cumulatively, would have an overriding effect on the naturalness of the WSA.

TABLE O-8

EFFECTS ON NATURALNESS WALES CREEK WSA

Feature	Legal Location	Length/Area	Impact	Remarks
Wales Cr. Fire Rd.	T13N, R13W Sec. 12,14,15	Approx. 3.3 mi.	High	This road is a cherrystem entering the WSA
Yourname Cr. Rd.	T13N, R12W, Sec. 17,18; T13N, R13W, Sec. 13,22,23	Approx. 3.6 mi.	High	Road is cherrystem entering the WSA
Vehicle Way off Elevation Mtn. Rd.	T13N, R13W, Sec. 21, NW¼	Approx. 1/2 mi.	Low	Vehicle Way off Wales Cr. Rd.
	T13N, R13W, Sec. 14, SW¼	Approx. 125 yds.	Low	Leads to developed spring
Vehicle Way off Elevation Mtn. Rd.	T13N, R13W, Sec. 28, N½	1/4 mi.	Low	
Thinnings (2)	T13N, R13W, Sec. 21	Under 1 ac.	Low	Substantially revegetated
Old fire line	T13N, R13W, Sec. 13,24	Approx. 1/2 mi.	Low	Visible from the air
Spur to cabin at head of Yourname	T13N, R13W, Sec. 22	1/8 mi.	Low	Leads to old mining operation
Old cabin	T13N, R13W, Sec. 22	Under 1 ac.	Low	Partially collapsed
Prospect hole (assoc. with old cabin)	T13N, R13W, Sec. 22	Under 1 ac.	Low	
Developed spring	T13N, R13W Sec. 14	Under 1 ac.	Low	Developed for cattle
Line fence	T13N, R13W, Sec. 25	Approx. 1/4 mi.		
Chamberlain Mtn. Rd.	T13N, R13W, Sec. 3,4	Approx. 1¾ mi.		Cherrystemmed for about 3/4 mi.



WALES CREEK IMPACTS

Outstanding Opportunities

The WSA is made up of two creek drainages and the bordering forested ridges. In the Wales Creek drainage numerous winding side drainages, combined with dense stands of lodgepole pine, spruce, Douglas-fir, larch, subalpine fir, and aspen provide outstanding opportunities for visitors to be physically and visually separated from one another.

Although the Yourname Creek drainage does not contain the high number of side drainages that Wales Creek does, the dense lodgepole pine stands in the drainage act as an excellent screening device to hide visitors from one another.

The rectangular configuration and two to three-mile core-to-perimeter distance of the WSA adds to the vegetative screening to enhance solitude values.

From several high points, such as Chamberlain Mountain, the visitor can look out and see signs of human activities such as towns, logging, mining, etc. These sights are unavoidable, but they do not seriously interfere with the opportunity to find solitude. From the vantage points, the visitor also can look out over the unroaded expanse of the drainages; and once in these drainages, these human activities are hidden both from sight and, for the most part, sound.

Vehicle traffic on the Wales Creek fire road and on Yourname Creek road, especially during autumn hunting season, is noticeable near those roads. On the whole, however, the Wales Creek WSA provides outstanding opportunities for solitude.

The major recreational use is big game hunting. The WSA supports a moose herd of about 25 to 30 animals as well as a substantial elk herd.

Because it is the last major unroaded area in the Garnet Range, the WSA has particular value for the roadless hunting experience it affords. Associated with the hunting opportunities are opportunities for wildlife viewing and wildlife photography.

The opportunities are somewhat limited for cross-country skiing day use because of poor winter access, but the potential is excellent for extended trips on either cross-country skis or snowshoes. While the thermal springs are year-round attractions, they have particular appeal for the winter traveler.

In summary, because of its size, ruggedness, and other physical characteristics; the Wales Creek WSA provides outstanding opportunities for primitive and unconfined recreation both through the diversity of available opportunities and the quality hunting.

Supplemental Values

The WSA contains at least four locations in the Wales Creek drainage where hot or warm springs are known to exist. These thermal springs were used by the miners in the past for recreational purposes.

The outstanding wildlife values are considered a supplemental value. It provides seasonal range for moose, elk, and deer. The WSA is used for nesting by goshawks, a Montana species of special interest or concern.

Wales Creek WSA comprises the last major unroaded drainages in the western Garnet Mountains and as such acquires some scarcity value in this heavily logged region of the country. Some of the old buildings, building remains, and mining activity may have historical significance.

Ecosystem Representation

The WSA consists of three different ecotypes as defined by Bailey and Kuchler (Kuchler 1964; USDA, FS 1976, 1978a, 1978b). Douglas-fir forest makes up 38 percent of the WSA; western spruce and fir forest, 56 percent; and alpine meadows and barren, 6 percent. (See Appendix Q for a description of these ecosystems.) All of these ecotypes are well represented in existing wilderness areas.

Wales Creek lies in an area where vast national forest lands have been designated as wilderness. Several more areas have been recommended for wilderness. (See Appendix P for a listing of these areas.)

Summary of Wilderness Quality

Wales Creek provides the wilderness visitor with a natural appearing area replete with opportunities for solitude and primitive recreation. The WSA also offers a diverse array of supplemental values. The dividing roads in the center adversely affect solitude values in that portion of the WSA and are a limiting factor.

Soil and Water Resources

The Wales Creek drainage, which is almost entirely on granodiorite bedrock, has extensive wet riparian areas and hot springs. The nature and extent of these wet areas, in conjunction with highly erosive soils, is indicative of a drainage that is highly susceptible to soil erosion and water quality problems unless extreme care is used in development activities.

Water quality data is nonexistent for Wales Creek, Yourname Creek, Deer Gulch, and Pearson Creek, the four streams which drain the WSA. As these watersheds are essentially undisturbed, water quality is expected to be high.

Belt series rock (4,500 acres), tertiary age andesite and granodiorite (3,100 acres and 4,200 acres respectively), and limestone (200 acres) occur in this WSA.

Soils formed in andesitic materials have moderate to strongly developed subhorizons. Potential soil compaction, erosion, and gully formation is moderate to severe. Where gravel content is greater than 35 percent, the forgoing problems are much less severe.

Soils formed in granodiorite usually have very weakly developed subhorizons. These soils are highly erosive when exposed, particularly at slopes greater than 15 percent. Areas of cliffs and talus are present especially on granodiorite bedrock.

Soils formed in tertiary age rhyolite have weakly developed subhorizons with low clay and high gravel content in the profile. These soils are generally stable for most uses.

Soils formed in Belt series rock and limestone generally have weakly developed subhorizons with a high gravel content. These soils are very stable with a low erosion and compaction potential.

Energy and Minerals

Wales Creek WSA is in the Montana Overthrust Belt. Bedrock consists of a thick series of old sedimentary rocks which are folded and faulted. Plutons of igneous rocks intrude the older units. Young volcanic rocks, primarily lava, cover large parts of the WSA. Prospects and mineral occurrences are common in Yourname Creek, and there are active gold placer operations just southwest of the WSA. Forty unpatented claims are within or adjacent to the Wales Creek WSA. All are located in Yourname Creek drainage. Under the 3802 Regulations, unpatented mining claims are regulated to prevent impairment, which would make the area unsuitable for wilderness designation.

One hundred percent of the Wales Creek WSA is either under oil and gas application or lease. Leased lands have special stipulations attached regarding nondegradation of the wilderness study areas, and those under application will not be leased under the present leasing moratorium in WSAs.

The Wales Creek WSA is estimated to have high to moderate potential for metallic mineral resources. This classification is strongly supported by abundant mineral occurrences and geochemical anomalies. The potential for other resources is considered low.

Lands

The Northern Tier Pipeline made application for a right-of-way over public lands in 1977. Among the alternative routes proposed, one passed through the Wales Creek drainage. As a result, the wilderness inventory for the Wales Creek WSA was accelerated.

The draft EIS for the pipeline was issued in January 1979, and public comment gathered on the alternative routes. The alternative that passed through Wales Creek was modified to pass just south of the WSA and adopted as the preferred alternative of the final EIS. In 1983, the Northern Tier project was abandoned.

The BLM intends, as part of its land adjustment process, to trade public lands for the state owned section in T. 13 N., R. 13 W., Sec. 16. This would be initiated whether or not the area is recommeded for wilderness designation.

Recreation Resources

The quality of recreational opportunities is high in this WSA. The landforms are interesting and provide a scenic backdrop that enhances most dispersed recreational activities. Wales Creek's rough topography also provides excellent photographic opportunities from several viewpoints. The WSA offers opportunities for nature study, horseback riding, hiking, camping, fishing, snowmobiling, nature study, photography, and cross-country skiing. Geothermal springs in the Wales Creek drainage attract visitors to their warm waters.

The dominant use of the WSA is for big game hunting. The Wales Creek WSA is part of a continuous belt of walk-in hunting areas from Chamberlain Creek on the north to Murray and Douglas creeks on the south. Included are the Blackfoot Special Management Area, the Wales/Pearson Creek area, and the Yourname/McElwain/Douglas Creek area. Collectively these areas contain over 66,000 acres of which 26,700 acres are public land.

Motorized vehicle use is light and restricted to existing vehicle ways and roads. There are no recreation facilities or vehicle way closures in this WSA (except for 1/4 mile of the Wales Creek Road). Access is limited because of the lack of roads.

Recreation use, except for hunting, is light because of its remoteness and the absence of an internal trail system. The best professional estimate of BLM recreation planners indicates that 500 visitors per year use the WSA. The WSA receives a great deal of fall use by hunters and probably 75 percent of use or 375 visitors per year are hunting related.

Visual Resources

Wales Creek WSA is classified in VRM Class I (see Appendix F).

Cultural Resources

The core of the Wales Creek WSA has not been systematically examined for cultural resources. However, information can be derived from inventory of similar environments and applied to this WSA.

Prehistoric utilization of the Wales Creek WSA and other portions of the Garnet Range has occurred for at least the last 10,000 years. The high, rugged mountain and forested character of the Garnets effectively limits human use from the late spring to the early fall. Prehistoric sites found to date focus on areas with high concentrations of resources. These include basalt lithic sources, open meadows and forest with high forb and big game populations, and perennial water sources.

Due to its location and the abundant pockets of concentrated resources, Wales Creek would provide an excellent study area for testing hypotheses on Late Paleo Indian and Early Middle Period subsistance patterns. The patterns of prehistoric use along the hot springs in Wales Creek offers another topic for investigation.

Historic use of the wilderness study area occurred in waves. One gunflint recovered from the WSA may come from the Fur Trade Period or historic Native American hunting activities. The discovery of gold within and southwest of the WSA in 1865 provided the greatest impetus for historic use and occupation. The community of Top O'Deep was established near the study boundary. Portions of Douglas Creek and Yourname Creek were also mined. Placer mining in the other drainages occurred in 1895-1915 and 1932-1942. The Wales Creek hot springs have been used recreationally throughout the historical period, and historical hunting has also occurred.

Forest Resources

Wales Creek WSA contains 10,850 acres of commercial forest land. It also contains 730 acres of noncommercial forest land, which although bearing some timber is extremely low in wood production or is impossible to log due to the presence of extensive rock outcroppings. Wales Creek has a few nonforested talus slopes or meadow lands in its boundaries. The majority of the commercial forest land in Yourname Creek and numerous side drainages could be harvested without special harvest techniques, but 4,861 acres containing granitic soils in Wales Creek itself would require special harvest techniques. Although there are cherrystemmed roads into the core of the WSA following Yourname Creek and the ridgeline just north, access roads would need to be constructed if logging were started. The WSA has an estimated timber harvest capability of 707 mbf/year sustainable yield.

Timber species by acreage include 5,330 acres of lodgepole pine, 440 acres of ponderosa pine, 4,875 acres of Douglas-fir, and 118 acres of Englemann spruce. The lodgepole stands in the Wales Creek and Yourname Creek drainages have been identified as problem sites if the current level of mountain pine beetle infestation increases to the epidemic level.

Range Resources

At this time, the only livestock grazing occurs in the Yourname Creek drainage bottoms as the surrounding hillsides are steep and heavily forested. Most grazing occurs on the private mining claim that follows the creek in T. 12 N., R. 12 W., Section 18; and portions of T. 13 N., R. 13 W., Section 13 are presently leased. Approximately 820 acres of public land are leased under the terms of the McElwain AMP (7119/7120). Approximately three AUMs are available at the present time on these public lands. No other legal grazing occurs inside the WSA. There are no range improvements within or adjacent to this WSA except for a fence along the east boundary of Sections 1 and 12. The portion of the AMP, which includes the WSA lands, is grazed 1½, 2½, or 3½ months in rotation during the summer months each year. The fourth year the pasture is rested and no cattle use the area.

Until 1970, the Wales Creek drainage was leased for livestock grazing under the Wales Creek AMP (7121). However, watershed damage, adverse impacts on Montana west slope cutthroat trout populations, and general unsuitability for livestock grazing brought a halt to the program; and the WSA has not been leased since. The WSA has an estimated grazing capacity of 121 AUMs if completely leased.

Wildlife and Fisheries

Threatened and Endangered Species

Four wildlife species appear on the federal list of threatened or endangered species under the authority of the Endangered Species Act 1973, as amended. The four species are the threatened grizzly bear and the endangered Northern Rocky Mountain wolf, peregrine falcon, and bald eagle. The entire resource area has been reviewed for occupied, critical, or essential habitat recommendations for the four species. The outcome of the review did not yield any habitat recommendations for designation within this WSA. It should be mentioned, however, that the review is continually updated; and, when substantial information indicates a change in the recommendations is appropriate, those changes will be proposed. To date there is no new information to change the recommendations for Wales Creek WSA.

Big Game Species

Moose use the WSA in conjunction with surrounding similar habitat on a yearlong basis. A population census, made during 1977 to 1978, estimated 25 to 30 animals in the WSA. This included three mature bulls, five young bulls, and the remainder, cows and calves. There are five antlered bull permits issued each year with success of 100 percent most years coming from areas in or adjoining the Wales Creek WSA. The moose are highly dependent upon the habitat in Wales Creek and the adjacent Elk Creek burn. However, the habitat is changing, through natural processes, causing a reduction of forb producing habitat that the moose prefer.

The WSA is good to excellent elk summer and fall habitat, with some winter and spring use occurring at lower elevations, on ridgelines, and southern exposures in Wales and Yourname creeks. No population numbers are available. The roadless character and abundant security cover in Wales Creek and upper Yourname Creek are favorable attributes for elk management during the hunting season. A telemetry study in Chamberlain Creek has not found displacement of elk into Wales Creek as a direct response to logging activity. However, as activity in Chamberlain and other drainages surrounding the WSA expand and increase in intensity, the present characteristics of Wales Creek may become more attractive to elk.

Both mule deer and white-tailed deer make use of summer and fall habitat in the WSA. Limited winter and spring habitat is available in the lower elevations of Wales and Yourname creeks. No population or hunter harvest data can be extrapolated for the WSA.

Black bear occur in both Yourname and Wales creeks. No population data is available, however, the abundant and widely distributed riparian habitat of the WSA is favorable for the bear.

Indirect sign of mountain lion indicates this species occurs yearlong in the WSA.

Other Species

Cutthroat and brook trout occur in Yourname Creek, with cutthroat in Wales Creek. The lower productivity of fish in the two streams is typical of cool, granodiorite substrate, aquatic habitat of this region. Fishing pressure is very light; however, the aquatic system is important as a genetic reservoir of native trout and as a supply of high quality water to downstream fisheries.

Social and Economic Conditions

Public comment on the Wales Creek WSA was split with the majority of commentors supporting wilderness designation. Reasons included the WSA's unique scientific value as a lowland drainage, its wildlife values, the scarcity of undisturbed environments in the Garnet Range, and its quality wilderness characteristics. Those who opposed wilderness designation pointed out the existence of proven mineral potential and historic mining activity, potential geothermal resources, restrictions on forest insect control, restrictions on snowmobile and vehicle use, and the need to manage timber resources. Several individuals who supported wilderness classification favored dropping the southern portion.

The economy of the immediate area is largely based upon agriculture and the forest industry. Presently, timber harvest does not occur in the WSA. A limited number of AUMs are grazed in the WSA and adjacent ranchers have expressed a desire to increase grazing in the WSA.

The greatest use of the WSA is for recreation. An estimated 500 visitors, primarily elk hunters from the Missoula area, use the WSA each year. This use represents about $15,000 per year in expenditures.

HOODOO MOUNTAIN WSA (MT-074-151A)

General Description

The Hoodoo Mountain WSA is located in Powell County in the Garnet Range, approximately 16 miles northeast of Drummond, Montana. The WSA contains no inholdings and is surrounded by state, private, and other BLM lands.

Wilderness Resources

Size

The Hoodoo Mountain WSA is 11,380 acres of public land.

Naturalness

Hoodoo Mountain appears to be natural and to have been affected primarily by the forces of nature. Signs of past human presence include a complex of two-wheel track vehicle ways in the center and southern portion, two old mining cabins in the southern portion, and some minor, well screened livestock grazing improvements consisting of two developed springs and two fence lines. There are also two existing picnic sites on the west side. These developments are detailed in Table O-9 and the Hoodoo Mountain WSA Impacts map. The effect of these signs of human activity are minimal and they neither individually nor cumulatively detract from the WSA's apparent naturalness.

Outstanding Opportunities

The Hoodoo Mountain WSA has a diverse physiographic makeup consisting of forested areas, grassland parks, wet meadows, rock outcrop, and variable slopes. The combination of these features provide natural screening, which makes it easy for the visitor to find a secluded place.

The WSA is extensively forested with Douglas-fir, lodgepole pine, and some alpine fir, which provides a high degree of vegetative screening. Intermittent, small grassland parks, rock outcrop along the ridges, and wet meadows in the drainages are the only extensive open areas. These open areas allow for panoramic views of the adjacent forested slopes and help to enhance the users perception of solitude.

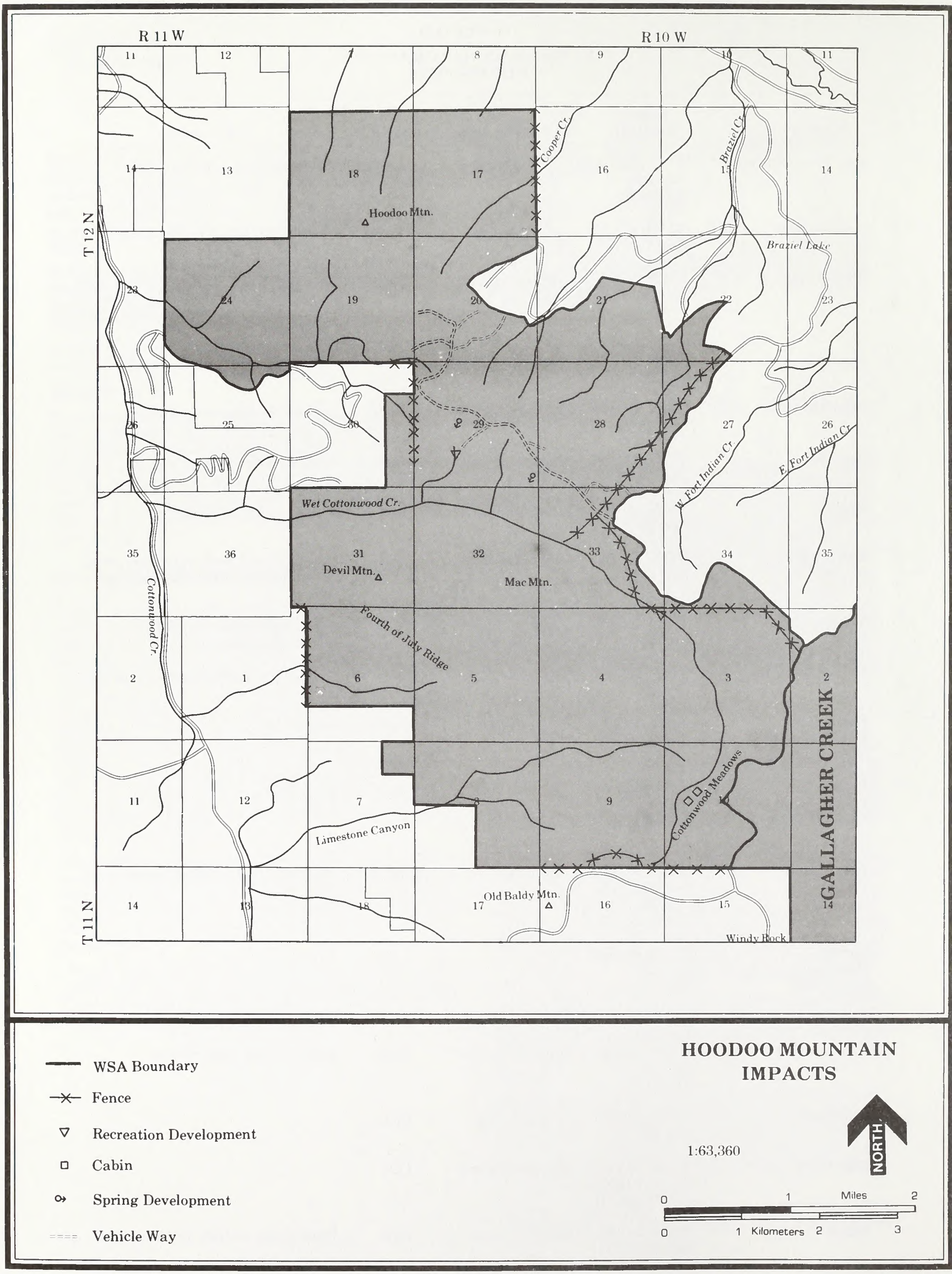
From higher vantage points a visitor can see traffic on State Highway 272 and on Nevada Lake but the one to two-mile distance from the borders of the WSA is enough to relegate most impacts to background influence.

The WSA's irregular, linear configuration and three-fourths mile to three-mile core-to-perimeter distance do not enhance its solitude values. However, the high degree of topographic and vegetative screening within the Hoodoo WSA provide outstanding opportunities for solitude.

Hoodoo Mountain's densely forested areas and intermittent open grassland parks and meadows are

TABLE O-9
EFFECTS ON NATURALNESS HOODOO WSA

Feature	Legal Location	Length/Area	Impact	Remarks
Old Camp Spring	T12N, R10W, Sec. 29, SE¼NW¼	Under 1 ac.	Low	Developed livestock spring.
2 old cabins	T11N, R10W, Sec. 10, NW¼	Under 1 ac.	Low	Logs rotting away. Site mostly revegetated.
Vehicle Way 4	T12N, R10W, Sec. 28,29,30,33	Approx. 2½ mi.	Moderate	2-wheel track with vegetated midstrip. Mostly screened by dense forest cover except when passes thru meadows.
Spur 4a	T12N, R10W, Sec. 28	Approx. 120 yds.	Low	Short spur to Vehicle Way 4.
Spur 4b	T12N, R10W, Sec. 28,29	Approx. 50 yds.	Low	Spur to Vehicle Way 4
Spur 4c	T12N, R10W, Sec. 19,20	Approx. 1/4 mi.	Low	Spur to Vehicle Way 4.
Spur 4d	T12N, R10W, Sec, 20	Approx. 150 yds.	Low	Spur to Vehicle Way 4.
Vehicle Way 3	T12N, R10W, Sec. 33	Approx. 1/2 mi.	Low	2-wheel track with vegetated strip. Some light maintenance has been done.
Vehicle Way 8	T12N, R10W, Sec. 20	Approx. 3/4 mi.	Low	Some light improvements. Little use. 2-wheel track.
Vehicle Way 10	T12N, R10W, Sec. 9	Approx. 100 yds.	Low	2-wheel track. Mostly revegetated.
Recreation Development Old Camp Cr.	T12N, R10W, Sec. 29	Under 1 ac.	Low	Fire rings.
Recreation Development Green Park	T11N, R10W, Sec. 4, NE¼NE¼, Sec. 3	Under 1 ac.	Low	Fire rings.
Range fence	T12N, R10W, Sec. 22,27,28, 29,33,34, T11N, R10W, Sec. 3	Approx. 7 mi.	Moderate	Well screened by forest cover.
Spring Development (unnamed)	T12N, R10W, Sec. 29, SE¼SE¼		Low	
Spurs (not numbered)	T12N, R10W, Sec. 28,29,	Approx. 1/4 mi.	Low	Spur to Gobbler's Knob.
	T12N, R10W, Sec. 29, SE¼NW¼	Approx. 1/8 mi.	Low	Spur to Old Camp Spring.
Line fence	T12N, R10W, Sec. 17	Approx. 1 mi.	Low	
Line fence	T11N, R10W, Sec. 6, T12N, R10W, Sec. 31	Approx. 1¼ mi.	Low	
Fence	T11N, R10W, Sec. 9,10	Approx. 1¾ mi.	Low	Runs along section line and road.



HOODOO MOUNTAIN
IMPACTS

excellent habitat for a variety of wildlife. Because of this, outstanding opportunities exist for bird watching, nature study, and walk-in big game hunting. Opportunities for day hiking, cross-country skiing, and snowshoeing are also available. Presently, there are unmaintained trails that were marked by the Blackfoot Forest Protective Association in the vicinity of Cottonwood Meadows, Fourth of July Ridge, and other sections of the WSA. Some opportunities for fishing, camping, photography, and horseback riding also exist. In summary, diverse and quality primitive and unconfined recreational activities are possible within the Hoodoo Mountain WSA.

Supplemental Values

The WSA contains many features of ecological value such as the densely forested areas, open grassland parks, meadows, and small creeks that provide excellent habitat for a wide range of wildlife such as elk, mule deer, white-tailed deer, black bear, porcupine, grouse, eagles, hawks, and other nongame species. It is believed that marten, fisher, and wolverine use the WSA. In addition, a number of marked foot trails made by sheepherders 25 to 50 years ago and the two log cabins may have historical value.

Ecosystem Representation

The WSA contains three different ecotypes. The Douglas-fir forest makes up 12 percent of the WSA; western spruce and fir forest, 62 percent; and alpine meadows and barren, 26 percent. All of these ecotypes are well represented in existing wilderness areas.

Hoodoo Mountain lies in an area where vast national forest lands have been designated as wilderness. Several more areas have been recommended for wilderness.

Summary of Wilderness Quality

Although the WSA's irregular shape does not enhance solitude conditions and the WSA is somewhat adversely affected by nearby human activity, these problems are insignificant when compared to its generally excellent solitude, outstanding opportunities for primitive recreation, and natural condition.

Soil and Water Resources

The WSA contains the Braziel and Wet Cottonwood Creek drainages. Channel stability analysis has been run on Braziel and Wet Cottonwood creeks. Within the WSA boundaries both stream channels appear to have only moderate resistance to damage due to increased stream flow. Available water quality data indicates that the suspended sediment concentrations in Wet Cottonwood Creek during runoff periods is less than 50 mg/l and, therefore, is in very good condition. Water quality data is not available for Braziel Creek because activities that require such monitoring have not occurred. However, in the absence of disturbance, water quality is assumed to be very good.

Belt series rock (6,400 acres), tertiary-age andesite (4,900 acres), and tertiary-age rhyolite (200 acres) occur in the WSA. Areas of cliff and talus are present along with extensive areas of wet meadows and riparian zones especially along Wet Cottonwood Creek.

Soils in this WSA range from those with weakly developed subhorizons to soils with clayey subhorizons. The weakly developed soils usually have high gravel content and are minimally prone to compaction and erosion. Soils with clayey subhorizons, where gravel content is moderate, have a moderate to high compaction and erosion potential. These soils are also prone to slump problems, especially where shallow groundwater is present. T. 12 N., R. 10 W., Section 22, SW¼ contains an example of the type of slump that can occur on these materials.

Energy and Minerals

The geology of the Hoodoo Mountain WSA is similar to that of the Wales Creek WSA, and the discussion of energy and minerals for that WSA is also applicable to Hoodoo Mountain with the exception that it has no unpatented mining claims. One hundred percent of Hoodoo Mountain WSA is covered by post-FLPMA oil and gas leases or applications.

The Hoodoo Mountain WSA has moderate potential for metallic mineral resources in parts of the WSA and low potential in others. Much of the area is covered by lava deposits which makes resource assessment difficult. Potential for other resources is generally considered low. The level of confidence in the classification is moderate.

Recreation Resources

In this WSA there are excellent opportunities for sightseeing, camping, horseback riding, walk-in hunting, backpacking, and day hiking. In addition, there is potential for a limited amount of motorized vehicle use, particularly motorcycle and four-wheel drive use, in association with fall hunting. Opportunities for photography, fishing, cross-country skiing, nature study, and rock climbing also are available.

Fall hunting provides the primary recreational use of Hoodoo Mountain WSA. The WSA is part of the West Fork Braziel Creek/Gobbler's Knob/Cottonwood Creek walk-in hunting area which contains 15,000 acres, including 12,000 acres of public lands. However, a much larger area is effectively closed to vehicular traffic because of limited access through private lands north and west of the WSA.

Two small picnic sites exist at the edge of the WSA. Both contain fire pits, picnic tables, and a lean-to shelter but are seldomly visited.

Recreation use, except for hunting, has been limited because of the remoteness of the WSA, the absence of a maintained trail system, and the lack of a good road to the WSA boundary. Professional estimates of BLM recreation planners indicate approximately 200 visitors per year. This is a popular hunting area which receives considerable early season use. An estimated 90 percent of use or 180 visits are related to hunting activities.

Visual Resources

Hoodoo Mountain WSA is classified in VRM Class I (see Appendix F).

Cultural Resources

A limited cultural resource inventory indicates the Hoodoo Mountain WSA, which is environmentally similar to the Wales Creek WSA, had a similar type of prehistoric use pattern. The one site recorded to date was located in a resource concentration area, and it dates to the Early Middle Period. This would suggest this WSA would also function as an area for testing hypotheses on prehistoric subsistance strategies.

The lack of precious metals mineralization prohibited the development of a mining industry. Historically, the primary use of the WSA was as summer forage for domestic sheep and later cattle grazing. Hunting was also an important historical use.

Forest Resources

Hoodoo Mountain WSA contains 9,078 acres of commercial forest land. It also contains 1,983 acres of noncommercial forest land which, although forested, is extremely low in timber productivity or is impossible to log due to the presence of extensive rock outcrops. Hoodoo Mountain also has 319 acres of nonforested talus slope and meadow land. Most of the commercial forest land could be cut without special management but 2,402 acres would require special harvest techniques to avoid environmental degradation. The WSA lacks any access road so, if logged, roads would have to be constructed. The WSA has an estimated timber harvest capability of 635 mbf/year sustainable yield. Timber species by acreage in the WSA include 9,817 acres of lodgepole pine, 1,207 acres of Douglas-fir, and 37 acres of Engelmann spruce.

Range Resources

A large portion of the WSA is under lease for livestock grazing under the terms of the Braziel Creek (7207) and Devil Mountain (7210) AMPs. The area under lease is used by livestock two out of three years at some time between July 1 and September 30. The third year the area is totally rested. Approximately 124 AUMs are licensed out of a total of 186 AUMs available within the WSA. Also, two spring developments and approximately seven miles of fence are within the WSA. Evidence can occasionally be found of trespass grazing use in Cottonwood Meadows and at the south end of Fourth of July Ridge but such trespass is sporadic.

The WSA has an estimated grazing capacity of 184 AUMs if it were completly leased. No range development projects are planned inside this WSA.

Wildlife and Fisheries

Threatened/Endangered Species

There is no known occupied, critical, or essential threatened and endangered species habitat in the Hoodoo Mountain WSA.

Big Game Species

Elk habitat is used primarily in the summer and fall. Some early winter and late spring use may occur in small areas during mild seasonal weather patterns. The roadless character and adequacy of security cover in the WSA creates favorable summer and fall habitat for this species.

Mule deer use the WSA in late spring through the fall. Little or no wintering activity is found. This is the second year of the current telemetry study for mule deer seasonal distribution. Seasonal and yearlong home ranges are being formulated based on preliminary data for this species.

Black bear occur in the WSA, but densities appear to be low.

Other Species

Cutthroat trout are present in Cottonwood Creek in limited numbers and size. Fishing pressure is very low in the WSA.

Social and Economic Conditions

Public comment on this WSA was split. Those who were against wilderness designation underlined the value of its timber. Some identified the presence of human impacts in the form of fences, spring developments, stock driveways, recreation campsites, and vehicle ways. However, of these, several also indicated that these developments did not detract from the naturalness or opportunities for solitude and primitive recreation.

Proponents of wilderness designation pointed out the historic old sheep trails; outstanding natural beauty; and presence of wolverine, marten, and fisher, in addition to a variety of the more common wildlife. Cottonwood Meadows were identified as a special attraction. Several also noted that the WSA has the ability to easily revert to a natural condition.

The general economic setting is the same as for Wales Creek. The WSA presently attracts 200 visitors per year which equates to about $7,000 to the regional economy. Grazing in Hoodoo WSA is more extensive than Wales Creek. A total of 124 AUMs are leased for $170 in grazing fees each year.

GALLAGHER CREEK 202 WSA

General Description

The Gallagher Creek 202 WSA is bordered on the west by Hoodoo Mountain WSA and is located in the Garnet Range in Powell County. It is located approximately 18 miles northeast of Drummond, Montana. The study area contains no inholdings and is surrounded by private, state, and other BLM lands.

Wilderness Resources

Size

The Gallagher Creek 202 WSA is 4,257 acres of public land.

Naturalness

Gallagher Creek appears to be predominantly natural in character with few signs of human presence. As shown in Table O-10 and the Gallagher Creek 202 WSA Impacts map, there are remnants of an old cabin in the southern portion, a two track vehicle way jutting from the northern boundary road, and a range fence on its northern edge. These structures have no more than localized adverse effect. The 202 WSA is otherwise undeveloped and retains its pristine character.

Outstanding Opportunities

Opportunities for solitude in the Gallagher Creek 202 WSA are outstanding as the distribution of the coniferous forest tends to isolate visitors, yet is not so dense as to preclude travel.

The forest vegetation is mainly Douglas-fir and lodgepole pine with Engelmann spruce along stream bottoms. Aspen pockets in the drainages, scattered open meadows, and rock bluffs and scree slopes visually enhance the predominant forest. Gallagher Creek and Indian Creek, along with their tributaries, supply walking routes.

Gallagher Creek is only two miles from ranching operations, State Highway 272, and Nevada Lake. However, this two-mile separation and vegetative screening effectively minimizes most visual and audio impacts.

Perimeter roads and public land ownership boundaries make for very irregular borders. Core-to-perimeter distances vary from 1/2 to 2-1/2 miles. Its configuration does not enhance its solitude values; but presently this is not a significant problem as it is surrounded by undeveloped, natural appearing lands. Its small size would preclude effective management for wilderness if disruptive offsite activities were to occur.

The 202 WSA's topography and scenery provide hiking, backpacking, sightseeing, and photographic opportunities of exceptional quality. The resident wildlife populations also offer excellent opportunities for nature study, photography, and walk-in hunting. The opportunities for primitive and unconfined recreation are outstanding in quality and diversity.

Supplemental Values

Gallagher Creek provides occupied habitat for several significant species of wildlife. Elk, mule deer, black bear, white-tailed deer, and mountain lion inhabit the 202 WSA. There are numerous nongame species, and some of the more uncommon ones are bobcat, wolverines, marten, and fisher. Grouse are also abundant. Limited peregrine falcon habitat has also been identified. Of special interest are specimens of petrified wood found along Gallagher Creek.

Ecosystem Representation

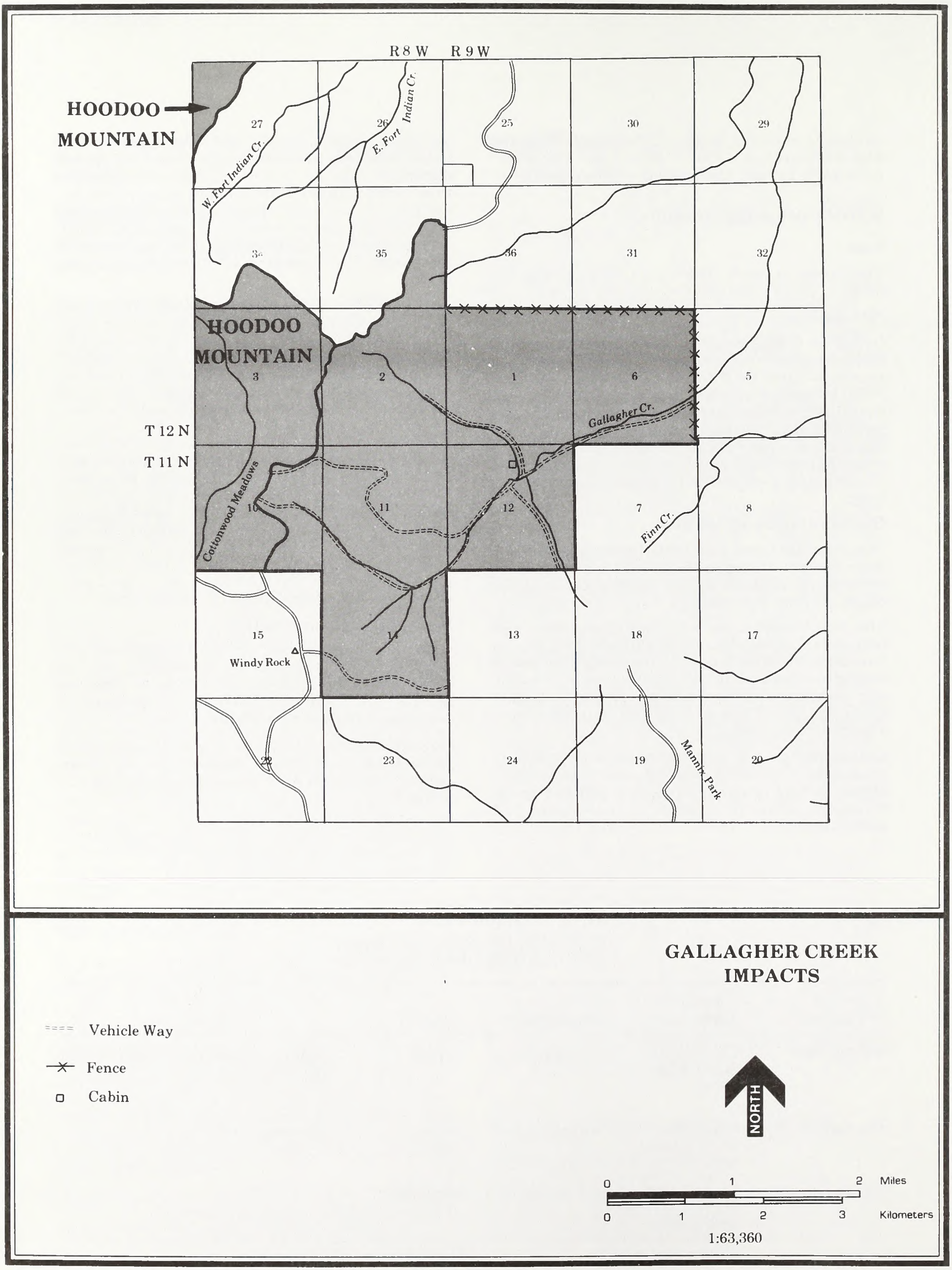
Gallagher Creek consists of three different ecotypes. Douglas-fir forest makes up 29 percent; western spruce and fir forest, 73 percent; and alpine meadows and barren, 22 percent. All of these ecotypes are well represented in existing wilderness areas.

Gallagher Creek lies in an area where vast national forest lands have been designated as wilderness. Several more areas have been recommended for wilderness.

TABLE O-10

EFFECTS ON NATURALNESS GALLAGHER CREEK 202 WSA

Feature	Legal Location	Length/Area	Impact	Remarks
Vehicle Spur	T11N, R10W Sec. 2, NW¼, SW¼	100 yards	Low	Spur to vehicle way #1 (NW boundary of area)
Old Cabin	T11N, R10W Sec. 12, NW¼, NE¼	under 1 acre	Low	Remnant cabin
Range Fence	T11N, R10W Sec. 1, 2, T11N, R9W, Sec. 6	approx. 4 miles	Moderate	



GALLAGHER CREEK IMPACTS

Summary of Wilderness Quality

The 202 WSA is natural, offers opportunities for solitude and primitive recreation, and provides important wildlife habitat. However its small size would make it unmanageable to preserve wilderness values if disruptive offsite activities occurred.

Soil and Water Resources

Channel stability analysis rates Gallagher Creek as having only moderate resistance to damage from increase in stream flow. There is no water quality data. By analogy to similar basins elsewhere in the Garnet Resource Area, water quality is judged to be good to excellent, especially as this watershed is almost totally undisturbed.

There are numerous wet areas and springs in the upper reaches of this drainage. These riparian areas are especially sensitive and require specialized management to maintain their current condition.

Approximately 3,200 acres occur on tertiary age volcanics (andesite) with about 900 acres of tertiary age rhyolite. Substantial areas of cliff and talus occur.

Soils formed in andesite have weakly to moderately developed subhorizons with a high gravel content. The low clay content soils have few problems insofar as general management activities are concerned. Where clay content is in the 25 to 34 percent range the soils are somewhat prone to gully development.

Soils formed in tertiary age rhyolite have weakly developed subhorizons with low clay and high gravel content in the profile. These soils are generally stable for most uses.

Energy and Minerals

The geology of the Gallagher Creek 202 WSA is similar to that of the Wales Creek WSA and the discussion of energy and minerals for the WSA is also applicable to Gallagher Creek with the exception that it has no unpatented mining claims. One hundred percent of Gallagher Creek 202 WSA is covered by post-FLPMA oil and gas leases or applications. It is almost entirely covered by lava and as such is considered to have a low probability for most energy and mineral resources. However, the confidence in the classification is only moderate.

Recreation Resources

Recreational opportunities in the Gallagher Creek 202 WSA are significant. The cliff walls and unique geologic features provide for unusual scenic views. Hunting potential is high, with numerous wild game species available. Other recreational experiences include rock climbing, camping, fishing, nature study, bird watching, day hiking, backpacking, and horseback riding.

The dominant use of the 202 WSA is fall hunting. Motorized vehicle use along peripheral vehicle ways is light except during hunting season. Because of the lack of internal roads and the presence of adjacent private lands on the eastern boundary, the 202 WSA is a walk-in hunting area.

Recreation use, except for hunting, is light because of its remoteness, the absence of a maintained internal trail system, and a good road to its boundary. Professional estimates of BLM recreation planners indicate approximately 100 visitors per year view the 202 WSA. It is used considerably by hunters during the fall, and an estimated 90 percent of use or 90 visits per year are hunting related.

Visual Resources

Gallagher Creek 202 WSA is classified in VRM Class I (see Appendix F).

Cultural Resources

The Gallagher Creek 202 WSA is contiguous to the Hoodoo Mountain WSA and appears to contain similar cultural resources. Very little cultural resource inventory has actually occurred within the 202 WSA.

Forest Resources

This 202 WSA contains 3,274 acres of commercial forest land. It also contains 922 acres of noncommercial forest land which although forested is extremely low in timber productivity or is impossible to log due to the presence of extensive rock outcrops. Gallagher Creek also has 61 acres of nonforested talus slope or meadow land. Most of the commercial forest land could be cut without special management, but 962 acres would require special harvest techniques. The 202 WSA lacks any access road so, if logged, roads would have to be constructed. The 202 WSA has an estimated timber harvest capability of 249 mbf/year sustainable yield. Timber species by acreage include 1,172 acres of lodgepole pine, 109 acres of ponderosa pine, and 2,915 acres of Douglas-fir.

Range Resources

There is no authorized livestock grazing within this 202 WSA. Evidence can be found of trespass cattle use in the low reaches of Gallagher Creek in abnormally dry summers. Steps are presently being taken to construct a drift fence in the southeast side and a three mile fence on the north and east sides of this study area that should resolve the livestock trespass use. There is one fence development. The 202 WSA has an estimated grazing capacity of 154 AUMs if it were completely leased. No range improvement projects are planned.

Wildlife and Fisheries

Threatened and Endangered Species

There is no known occupied, critical, or essential threatened and endangered species habitat in the Gallagher Creek 202 WSA.

Big Game Species

Elk habitat is used primarily in the summer and fall, with occasional late winter and early spring use along the southern exposures of the eastern part. Adequate fall security cover in a roadless setting and a good mix of habitat components make this an important elk area.

Mule deer use the 202 WSA from late spring through fall following migration from winter ranges about 11 miles to the west and south. It contains high quality fawning, forage, and security habitat. Six years of telemetry data supports the seasonal distribution and use of this 202 WSA.

Black bear are found throughout the Gallagher Creek drainage.

Other Species

Cutthroat trout are present in fair numbers. Forest grouse are common. The cliff areas at the head of Gallagher Creek hold significant raptor habitat.

Social and Economic Conditions

Comments pertaining to wilderness designation for Gallagher Creek both supported and argued against such classification. Those who favored wilderness designation cited its opportunities for solitude and primitive recreation and its naturalness as well as its wildlife and historic trail values. Opponents underlined its contribution to the forest land base, felt that wilderness would interfere with game harvest, and stated that the existence of grazing improvements and the bisecting vehicle way precluded its naturalness.

The general economic setting is the same as that of Wales Creek. The area receives 100 visitor days per year which means $3,450 to the regional economy. No grazing or timber harvest presently takes place in the area; however, adjacent ranchers are interested in obtaining grazing leases in the 202 WSA.

QUIGG WEST 202 WSA

General Description

Quigg West lies adjacent to the 60,500-acre Forest Service RARE II Area, Quigg (Q1-807). The 202 WSA is located 20 miles west of Philipsburg, Montana, in Granite County. It contains no inholdings and is surrounded by private and national forest lands.

Wilderness Resources

Size

Quigg West contains 520 acres of public lands.

Naturalness

Quigg West is completely natural in character with human impacts, past or present, unnoticeable. The only human imprints upon the landscape are two footpaths, one in each of the two drainages. However, these paths are often untraceable and are believed to be game trails making them part of the natural habitat of the native fauna. The lack of continuity of both trails preclude their consideration as significant impacts in any context. The tack-on as a whole appears untouched by humans and is in a totally natural state.

Outstanding Opportunities

The topography and vegetative cover of Quigg West enhances its solitude opportunities. Two drainages, Capron Creek and Sheep Gulch, transect the tack-on. The extremely steep, side slopes are interspersed with coniferous forest cover and talus open areas while the tops of the ridges between and around the drainages are primarily Douglas-fir forest. The boundaries are very irregular, following public ownership boundaries. Core-to-perimeter distances are as little as 200 yards and as much as three-fourths of a mile.

Quigg West does offer outstanding opportunities for solitude in conjunction with the Forest Service RARE II area. The steep slopes of the two drainages keep visibility restricted to the user's immediate area. On the ridge the vegetation is dense enough to limit a visitor's ability to see others. The drainages themselves are not only densely vegetated but have bends and turns in them that effectively isolate people from one another. The tack-on, however, is too small to supply outstanding solitude by itself. Its value lies in the enhanced solitude and varied terrain it provides for users of the Forest Service Quigg RARE II area.

Quigg West offers opportunities for primitive or unconfined types of recreation. However the topography is quite steep for travel by foot or horseback. The vegetation in the drainages is dense enough to make travel difficult and at times almost unpleasant. Those opportunities that do exist are for hiking, backpacking, and hunting. The opportunities for these activities are less than outstanding, primarily due to the limited access.

Supplemental Values

Quigg West provides critical yearlong range for bighorn sheep as well as for elk and mule deer.

Ecosystem Representation

Quigg West consists of three different ecotypes. Douglas-fir forest makes up 72 percent; western spruce and fir forest, 5 percent; and alpine meadows and barren, 23 percent. All of these ecotypes are well represented in existing wilderness areas.

Quigg West lies in an area where vast national forest lands have been designated as wilderness. Several more areas have been recommended for wilderness.

Summary of Wilderness Quality

Quigg West is pristine and would provide outstanding opportunities for solitude and for primitive recreation in conjunction with the Forest Service RARE II Quigg area.

Soil and Water Resources

The entire tack-on occurs on Belt series rock. Much of the tack-on is rock outcrop and the remainder has soils with weakly developed subhorizons and high gravel content. These soils are very stable with a low erosion and compaction potential.

Stream reach inventory and water quality data are not available. Other areas in the Garnet Resource Area with similar bedrock geology and soils have channels which are highly resistant to erosion and have high quality water, especially in the undisturbed state. The same is assumed to be true for Sheep Gulch and Capron Creek. Sensitive riparian areas have not been identified.

Energy and Minerals

The tack-on is within the Montana Overthrust Belt, a region in which the rocks have been thrust eastward over one another to form repeating stacks of units. The bedrock consists of very old sedimentary rocks that have been intruded by much younger rocks. The intrusions may be part of the same type as found at Butte, Montana. The bedrock is capped by stream, lake, and glacial sediments and locally by young volcanic rocks.

The tack-on is in a mineralized region. The Philipsburg Mining District is located to the east, and the Blackpine copper, silver, and tungsten mine is ten miles to the northeast. Placer gold occurs in many of the streams, and there is one small inactive gold/silver lode mine nearby. U.S. Geological Survey geochemical data show a strong barium anomaly in one stream draining from Quigg West. Barium is commonly associated with gold in the area. In addition, parts of the tack-on are covered by older gravels similar to gold bearing gravels on the east side of the Garnet Resource Area. Together the geochemical data and presence of older gravels indicate moderate potential for lode and placer gold.

Half of this tack-on has been leased for oil and gas (post-FLPMA) and the remaining portion is under application and will not be leased because of the present moratorium in wilderness study areas. There are no unpatented claims recorded in its boundary. Stipulations regarding the wilderness values are specially attached on oil and gas leases. Under the 3802 Regulations, unpatented mining claims with mineral development are regulated to prevent impairment; so if any are located, these standards will be applied.

The geologic environment in Quigg West and interpretation of available geochemical data indicate a low probability for uranium, geothermal resources, oil, and gas.

Recreation Resources

The primary recreational activity in Quigg West is big game hunting in the fall. The tack-on provides some dispersed recreation in the form of hiking and horseback riding, but does not receive a large amount of use. The best professional estimate of BLM recreational planners indicates that approximately 25 visitors use the tack-on per year. All use is estimated to be hunting related.

There are no vehicle ways nor any constructed recreational facilities. The tack-on is part of the Ram Mountain walk-in hunting area, which is managed as a yearlong closure to motorized vehicles. This closure contains 11,100 acres of which 4,800 acres are BLM lands. The absence of internal trails and intervening private lands make access difficult.

Visual Resources

Quigg West is classified in VRM Class I (see Appendix F).

Cultural Resources

Although no cultural resource inventory has occurred within the Quigg West tack-on, intensive inventory has occurred on BLM-managed lands immediately to the east. Based upon this inventory and the prehistoric and historic site orientation patterns observed, it is unlikely this small tack-on will contain any cultural resources.

Forest Resources

The tack-on contains 284 acres of commercial forest land. It also contains 214 acres of noncommercial forest land which although forested is extremely low in timber productivity or is impossible to log due to the presence of extensive rock outcropping. Quigg West also has 22 acres of nonforested talus slope or meadow land. Due to the steep topography, only 22 acres could be cut without special timber techniques. The remainder would require special harvest techniques. The tack-on lacks any access road so, if logged, roads would have to be constructed. The tack-on has an estimated timber harvest capability of 15 mbf/year sustainable yield. Timber species by acreage in the area include 434 acres of lodgepole pine and 64 acres of Douglas-fir.

Range Resources

This small tack-on is not leased for livestock grazing. Occasional trespass horse use has been noted, but use is very sporadic. The tack-on has an estimated capacity of 20 AUMs if leased.

Wildlife and Fisheries

Threatened and Endangered Species

There is no known occupied, critical, or essential threatened or endangered species habitat on the Quigg West tack-on.

Big Game Species

Elk and mule deer late spring through fall habitat is found in a mix of timbered fingers and pockets intermingled with mountain dry parks. This habitat is contiguous with adjacent Forest Service and BLM elk and mule deer habitat.

Bighorn sheep make use of the tack-on through the summer and fall period as part of the Ram Mountain herd distribution approaching 200 animals.

Black bear are common in the tack-on and have been observed on its grassland slopes.

Other Species

There are no fisheries present. Management goals for wildlife in the tack-on should be aligned with the goals of the greater Forest Service Quigg RARE II area should they be designated wilderness.

Social and Economic Conditions

Most public comment to date has favored wilderness designation. Supporters cited old-growth timber stands, bighorn sheep populations, wildlife protection, and enhancement of the values on the adjacent Forest Service RARE II area as reasons to designate Quigg West as wilderness. Those who opposed wilderness designation pointed to conflicts with timber and minerals extraction industries and discrimination against those who prefer to use vehicles for their recreation.

The local economic setting is the same as that of Wales Creek. Quigg West attracts 25 visitor days, which contribute approximately $1,000 to the regional economy. Presently no grazing or timber harvest takes place in the tack-on.

CHAPTER 4

ENVIRONMENTAL CONSEQUENCES

WALES CREEK (SECTION 603): ALTERNATIVE A

Impacts on Wilderness Resources

The management of the WSA as a special management area would prevent short-term degradation of wilderness values on all 11,580 acres. This alternative, however, would be less secure in its protection of wilderness values than would wilderness designation because surface disturbing resource uses would be allowable if in accordance with management goals.

Naturalness, solitude, and scenic values could be degraded or destroyed if surface disturbing activities such as fire suppression, and mining operations were to occur. Likewise, vehicles allowed in accordance with management goals for activities such as recreation and mining would have at least a periodic impact on natural and solitude values. Conversely, management goals for a special management area would likely protect wilderness values on much of the 11,580 acres.

Due to the small size of the WSA and the abundant local supply of wilderness (3,431,339 acres in the region), nondesignation for this WSA would have little effect on providing wilderness opportunities close to metropolitan areas or expanding the geographical distribution of the NWPS. Likewise, as all three ecosystems represented in the WSA are well represented in the region and in the NWPS, designation of this WSA would not add to the diversity of the system (see Appendix Q).

Conclusion

Nondesignation of Wales Creek WSA along with the establishment of a special management area would likely protect wilderness values on 11,580 acres in the short term. However, depending on management goals for the area, some disruption of these values could occur over the long term.

Impacts on Soil and Water Resources

The loss of highly erosive granitic soils due to surface disturbing activities on 11,580 acres would likely occur to only a minor degree if Best Management Practices were applied (see Appendix B). Impacts of mining activity, if allowed by special management goals, would adversely affect sedimentation and water quality on Wales Creek and Yourname Creek.

Impacts on Energy and Mineral Resources

The release of the WSA from wilderness consideration may allow mineral exploration and development on 11,580 acres over the long term. Standard and special stipulations on oil and gas leases in the special management area would restrict exploration and development over the long term.

Impacts on Lands Program

Restricting transportation and utility corridors on 11,580 acres would cause a long-term decrease in possible corridor routes in the Garnet Resource Area.

Impacts on Recreation Resources

Mineral development, if allowed, could cause both a short and long-term impact by disturbing scenery and recreation sites. Special management for 11,580 acres may result in an increase in primitive recreation opportunities.

Impacts on Cultural Resources

Although provisions for inventory, mitigation, or avoidance of impacts on cultural resources exist, surface disturbing activities could result in some disturbance or destruction of cultural values. Conversely, increased resource management activity will likely stimulate discovery of cultural sites in the WSA.

Impacts on Visual Resources

Mineral development, if allowed, could cause short-term impacts that would bring about evident changes in the landscape.

Impacts on Forest Resources

The CFL on 10,850 acres within the WSA would not be available for harvest in the short and long term.

Impacts on Range Resources

There are only three AUMs being used at present by a grazing permittee who leases 820 acres of the WSA. If the entire 11,580 acres were leased, 121 AUMs would be available. Grazing in this alternative is limited to existing use; there is a potential 118 AUMs that would remain unused.

Impacts on Wildlife and Fisheries Resources

Special management on 11,580 acres would maintain or slightly improve habitat quality over the long term if wildlife habitat improvement projects were allowed. If management goals did not allow such improvement projects, the habitat condition for moose and elk can be expected to deteriorate as climax habitat increases in the WSA. This is especially critical for moose in the Wales Creek drainage, which provides the habitat for the nucleus population in the Garnet Range. If mineral development is allowed in riparian habitat, the habitat for many wildlife species would be destroyed and streambeds disrupted.

Impacts on Socioeconomic Conditions

Economic gains from 118 potential AUMs of livestock grazing and 789 mbf annual timber harvest would not be available. The recreation opportunities provided under this alternative enhance the western lifestyle which incorporates backcountry activities, hunting, and visiting historical sites.

WALES CREEK: ALTERNATIVE B

Impacts on Wilderness Resources

Selection of this alternative would give no special legislative protection to natural values on 11,580 acres. In the short term and long term alike, there would be some adverse affects on wilderness values. If resource development occurs, naturalness, solitude opportunities, and scenic values of those portions impacted would be permanently degraded or destroyed, affecting the wilderness qualities of the area.

A total of 10,683 acres of CFL would be available for timber management and 789 mbf would be cut annually. This would cause a long-term loss of naturalness and solitude values.

Timber harvest would create transitory range allowing grazing to increase. This would cause both short and long-term impacts on wilderness values by expanding the need for motorized vehicles for herd management and for construction of range projects.

Energy and mineral exploration and development without special stipulations to protect solitude and natural values would cause short-term impacts, if no discoveries were made, from the use of motorized and seismic equipment. If discoveries were made, long-term impacts would result from access roads, pipelines, drill pads, etc.

Utility and transportation corridor development in this WSA could result in long-term impacts on solitude and naturalness by altering the landscape and building the line and service road. The development would draw motorized use to the corridor.

Impacts on Soil and Water Resources

Unit management goals would not be able to mitigate the affects of surface disturbing activities on all 11,580 acres. Special practices would be required to prevent erosion on granitic soils. The numerous wet drainages and rock outcropping would make development difficult and surface disturbing activities could seriously effect water quality including that of the hot springs.

Road construction from timber harvest and mining activities would cause short-term increases in sediment production in streams.

Impacts on Energy and Mineral Resources

This alternative would allow the greatest degree of unrestricted energy and mineral exploration and development.

Impacts on Lands Program

There would be no restrictions on possible siting of transportation or utility corridors on any of the 11,580 acres of this area.

Impacts on Recreation Resources

Those opportunities associated with a roadless experience would be forgone.

Timber harvest of 789 mbf annually and associated road construction will have long-term impacts on dispersed recreation causing both a decrease in recreation opportunities associated with undeveloped land and an increase in motorized recreation.

Mineral, oil and gas, and transportation and utility corridor development could cause short and long-term impacts by disturbing recreation sites.

Opening the area for multiple use would cause a long-term increase in seasonal motorized recreation and long-term decrease in primitive recreation.

Impacts on Cultural Resources

Impacts on cultural resources under this alternative would be the same as Alternative A except there would likely be more surface disturbing activities permitted. This would result in more opportunity to discover cultural sites, but might result also in an increase in site disturbance as well.

Impacts on Visual Resources

Mineral and forest resource development would cause short and long-term impacts that would bring about evident changes in the landscape.

Impacts on Forest Resources

This alternative would allow 789 mbf to be harvested annually and would permit the timely control of forest insect and disease outbreaks. This would protect the productivity of CFL both within and adjacent to the Wales Creek area.

Impacts on Range Resources

This alternative would allow the grazing of 121 AUMs. Forest harvest and mining activities which open up the forest canopy would allow an opportunity for an increase in grazing to use the transitory range thus created.

Impacts on Wildlife and Fisheries Resources

Wilderness benefits to wildlife such as decreased disturbance on elk and deer summer and fall habitat and natural vegetative changes would be forgone. There could be a loss of fall hunting season security cover depending on the goals of the timber harvest program and also a loss of moose winter habitat. Wildlife could be displaced on 11,580 acres if the level of resource development exceeded an unquantifiable amount.

Management activities on about 11,580 acres will cause long-term impacts to wildlife summer and winter range by reducing security cover, thermal cover, and old-growth timber stands; disturbing riparian sites and areas where young are reared; increasing social intolerance and forage competition with livestock; and increasing the destruction of habitat by road building and other resource development.

Mineral development of riparian habitat will destroy habitat for many wildlife species and disrupt streambeds.

Short-term impacts to fisheries habitat would be caused by road construction disturbing streambeds.

Impacts on Socioeconomic Conditions

Selection of this alternative would benefit the economic picture by allowing for the grazing of 121 AUMs and the harvest of 789 mbf of timber annually. Forest management would create seven primary jobs in the private sector for timber harvest, planting, and timber stand improvement. Secondary jobs of processing the timber would also be created.

Grazing management could contribute an increase in ranch income over the long term. Recreation on public lands will contribute about the same opportunities as in Alternative A. Mining on public lands will contribute jobs and money to the local economy.

WALES CREEK: ALTERNATIVE C

Impacts on Wilderness Resources

Selection of this alternative would best preserve the wilderness qualities on 11,580 acres in the Wales Creek WSA. The naturalness of the WSA would be ensured over the long term and natural ecological changes would continue to occur. The WSA's opportunities for solitude and primitive recreation would be best guaranteed for future visitor enjoyment. Preservation of wilderness values would in turn protect the WSAs scenic values. Potential ecotype diversity and spatial distribution advantages for adding the unit to the NWPS would be the same as in Alternative A.

Due to the existence of 40 mining claims and the two cherrystemmed roads in this alternative, the WSA could not successfully be managed for the long term as wilderness.

Impacts on Soil and Water Resources

Soil and water resources would be protected from degradation under this alternative.

Impacts on Energy and Mineral Resources

New mineral entries or oil and gas leases would be disallowed if this alternative were chosen. The existing 40 unpatented claims would be honored if the owners have maintained validity of their claims. If this alternative were chosen, there would be a loss of 11,580 acres of moderate to high potential metallic mineral resources. Existing mineral claims would be restricted by special conditions to protect wilderness values if the claims were developed.

Impacts on Lands Program

Restricting transportation and utility corridors on 11,580 acres would cause a long-term decrease in possible corridor routes in the Garnet Resource Area.

Impacts on Recreation Resources

ORV closures on 11,580 acres would not significantly impact snowmobiles or four-wheeled motorized vehicle users as present use is largely confined to existing roads. One mile of vehicle way would be closed causing a loss of some motorized recreation. Most of the recreation use at present is not dependent on motorized vehicles so that the estimated 500 visitors per year would not decrease and could increase due to interest in the wilderness, at least for the short term. The degree of increase is not known at this time. Wilderness designation for 11,580 acres will allow maintenance of existing primitive recreation activity and backcountry hunting opportunities.

Impacts on Cultural Resources

Selection of this alternative would result in far less surface disturbing activity and therefore a decrease in disturbance of cultural sites on 11,580 acres. There would possibly be some adverse affect on cultural resources from recreational use of the portions of the WSA used by prehistoric, historic, and modern visitors alike. Inventory conducted prior to formal designation would help to identify sensitive areas for later management.

Impacts on Visual Resources

This alternative would have the least adverse impact to visual resources in either the short or long term.

Impacts on Forest Resources

A potential of 789 mbf/year sustainable yield on 10,850 acres of commercial forest land would be forgone if this alternative were chosen.

Impacts on Range Resources

Impacts on range resources would be the same as detailed in Alternative A.

Impacts on Wildlife and Fisheries Resources

Wilderness designation would result in more intensive habitat management adjacent to the WSA (e.g., clearcutting for forage production). This would result in a greater seasonal shift of elk and deer away from the WSA in late spring and summer to use this resource with a greater number of animals using the area in fall hunting season for security cover. The WSA would probably not be used by elk and deer to any significant degree in winter and early spring. Conversely the WSA is prime moose winter habitat. The same kind of more intensive habitat management outside the WSA given wilderness designation would result in a minor spring/summer shift of the moose away from the area in the short term and a major shift away in the long term. The base winter population of 25 to 30 animals would still use the area in the short and long term. Basically, the wildlife population shifting would occur not so much because of wilderness designation but rather due to increased intensity of habitat management outside the WSA to offset wilderness management inside.

Impacts on Socioeconomic Conditions

A total of 118 potential AUMs of grazing capacity and 789 mbf/year of timber harvest would be forgone, and 11,580 acres would be removed from future mineral entry or lease. There would also be some minimal loss of hunting expenditures due to the closure of one mile of vehicle way in the unit. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A.

WALES CREEK: ALTERNATIVE D

Impacts on Wilderness Resources

Under this alternative, the impacts would be the same as described in Alternative C on 4,900 acres in the Wales Creek drainage.

A total of 6,680 acres would be available for timber harvest; however, during the life of the plan, the acreage cut would be about the same amount as Alternative B. Therefore impacts would be similar.

Grazing would be the same as Alternative A.

Energy and mineral exploration and development on 6,680 acres could cause short and long-term impacts to wilderness values due to the use of motorized vehicles and surface disturbing activity at discovery sites including roads, drill pads, etc.

Wilderness values will receive protection on 4,900 acres of public lands allowing natural systems to continue with minimum impact from the development of other resources.

Utility and transportation corridor development would be considered only after careful study for 6,680 acres and, if a line or service road were to be built, could result in long-term impacts on solitude and naturalness by altering the landscape.

The 4,900 acres recommended suitable for wilderness in this alternative could be managed for the long term as wilderness.

Impacts on Soil and Water Resources

Road construction could cause short-term increases in sediment production in streams within the 6,680 acres recommended for nonwilderness.

Impacts on Energy and Mineral Resources

Wilderness designation will cause long-term impacts by excluding energy and mineral exploration and development on 4,900 acres.

This alternative would allow for the potential development of 40 unpatented mining claims in Yourname Creek and oil and gas leasing with special stipulations on 6,680 acres.

Impacts on Lands Program

Excluding transportation and utility corridor on 4,900 acres will cause a long-term decrease in possible corridor routes within the Garnet Resource Area.

Impacts on Recreation Resources

Timber harvest and road construction on 6,680 acres will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation.

Wilderness designation for 4,900 acres will allow primitive recreation activity and backcountry hunting opportunities but would exclude motorized vehicle recreation from these lands.

Mineral development could cause both a short and long-term impact by disturbing recreation sites that lie within the 6,680 acres recommended for nonwilderness.

Impacts on Cultural Resources

Impacts on cultural resources would be the same as Alternative C except there would be more surface disturbing activities permitted on 6,680 acres. Increased resource management activities would stimulate discovery of cultural sites on that acreage but would also increase the potential for site destruction.

Impacts on Visual Resources

Timber harvest and road construction, oil and gas leasing with special stipulations, and possibly utility corridor development on 6,680 acres will cause long-term impacts that bring about some evident change in the landscape.

Mineral development on 6,680 acres will cause short-term impacts that bring about evident changes in the landscape.

Impacts on Forest Resources

Annual harvest will be reduced by 489 mbf over the long term due to wilderness on 4,900 acres much of which is classified as CFL.

Impacts on Range Resources

Wilderness designation would likely maintain the status of three AUMs licensed on 820 acres of the WSA. As an increase in grazing leasing is not contemplated under this alternative, there would be no impact on the range resource.

Impacts on Wildlife and Fisheries Resources

Management activities on 6,680 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, and increasing the destruction of habitat by road building and other resource development. The significance of these impacts would depend on the amount of road closure and limitations on timber harvest resulting from management direction on these 6,680 acres.

Mineral development if allowed in riparian habitat will destroy habitat for many wildlife species and disrupt streambeds.

Short-term impacts to fisheries habitat will be caused when road construction disturbs streambeds. Impacts on 4,900 acres would be the same as detailed in Alternative C.

Impacts on Socioeconomic Conditions

Selection of this alternative would benefit the economic picture by allowing for the harvest of up to 350 mbf of timber annually and the potential development of 40 unpatented mining claims in Yourname Creek. Forest management would create four primary jobs in the private sector cutting, planting, and improving timber stands as well as some secondary jobs processing the timber. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A.

WALES CREEK: ALTERNATIVE E

Impacts on Wilderness Resources

A total of 6,680 acres would be available for timber harvest; however, during the life of the plan the acreage cut would be about the same amount as Alternative B. Therefore, impacts would be similar.

The impact of grazing on wilderness would be the same as Alternative A.

Energy and mineral exploration and development on 6,680 acres could cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc.

Recreation restrictions on motorized vehicle use on 4,900 acres will protect solitude and naturalness values over most of the special management area.

Wilderness values will receive some protection on 4,900 acres recommended for special management as the management direction would tend to safeguard those values. This would allow natural systems to continue with minimum impact from the development of other resources.

Utility and transportation corridor development would be considered for 6,680 acres and, if a line or service road were to be built, could result in long-term impacts on solitude and naturalness by altering the landscape.

Impacts on Soil and Water Resources

The potential loss of highly erosive granitic soils and loss of water quality due to surface disturbing activities would be less likely to occur on 4,900 acres due to special management restrictions. Road construction on 6,680 acres will cause short-term increases in sediment production in streams.

Impacts on Energy and Mineral Resources

Mineral activities on 4,900 acres would be impacted by this alternative. The lands would be closed or would carry restrictive stipulations on oil and gas leasing. Mineral development potential is moderate and the WSA would remain open to mineral entry. There would be special stipulations on 6,680 acres.

Impacts on Lands Program

Restriction of transportation and utility corridors on 4,900 acres will cause a long term decrease in possible corridor routes in the Garnet Resource Area.

Impacts on Recreation Resources

Timber harvest and road construction on 6,680 acres will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation.

Special management for 4,900 acres will allow for an increase in primitive recreation activity.

Impacts on Cultural Resources

Increased resource management activities would stimulate discovery of cultural sites on 6,680 acres. Less development on 4,900 acres would tend to safeguard undiscovered sites.

Impacts on Visual Resources

Timber harvest and road construction, oil and gas leasing with special stipulations, and utility corridor development on 6,680 acres could cause long-term impacts that bring about some evident change in the landscape.

Mineral development could cause short-term impacts that bring about evident changes in the landscape.

Impacts on Forest Resources

Timber available for annual harvest is reduced by 489 mbf over the long term due to special management on 4,900 acres, many of which are classified as CFL.

Impacts on Range Resources

In the short and long term, management actions would increase the AUMs available for livestock grazing on 6,680 acres due to improved vegetative condition and increased timber harvest. However, as this alternative calls for no increase in grazing in the area, these additional AUMs would not be utilized.

Impacts on Wildlife and Fisheries Resources

Special management on 4,900 acres would maintain or improve habitat quality over the long term.

Management activities on about 6,680 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, and increasing the destruction of habitat by road building and other resource development. The significance of these impacts would depend on the amount of road closure and limitations on timber harvest resulting from management direction on these 6,680 acres.

Mineral development if allowed in riparian habitat will destroy habitat for many wildlife species and disrupt streambeds.

Short-term impacts to fisheries habitat will be caused when road construction disturbs streambeds.

Impacts on Socioeconomic Conditions

Forest management on 6,680 acres would create four jobs in the private sector for timber harvest, planting, and timber stand improvement. Secondary jobs of processing the timber would also be created. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A.

HOODOO MOUNTAIN (SECTION 603): ALTERNATIVE A

Impacts on Wilderness Resources

The discussion of the trade-offs of wilderness versus special management outlined for Wales Creek, Alternative A would also be true for this WSA except that impacts would pertain to 11,380 acres.

Likewise, potential ecotype diversity and spatial distribution advantages to adding the WSA to the NWPS would be the same as in Wales Creek, Alternative A.

Grazing could occur in Hoodoo Mountain depending on management goals. Such activity, although an allowable nonconforming use in wilderness, is a sign of human presence. Operations such as the building of water storage reservoirs, the use of vehicles for cattle monitoring, etc. would have at least a periodic impact on natural and solitude values. No range improvements however are planned in this area. Likewise, vehicles allowed for other activities such as grazing, mining, or recreation, when in accordance with the management goals for the area, would have a similar adverse effect.

Conclusion

Nondesignation of the Hoodoo Mountain WSA along with administrative commitment to specially manage the area would likely result in protection of wilderness values on 11,380 acres in the short-term but some disruption of those values over the long term could occur depending on the management goals specified for the area.

Impacts on Forest Resources

Impacts on timber resources would be the same as Wales Creek, Alternative A except that the total CFL affected would be 9,078 acres in Hoodoo Mountain WSA.

Impacts on Range Resources

A total of 124 out of a potential 163 AUMs are being used in Hoodoo Mountain WSA at present. As grazing in this alternative is limited to existing use, there is a potential that 39 AUMs will not be available if this alternative is selected.

Impacts on Socioeconomic Conditions

As grazing and timber harvest will be dependent on the direction chosen for the special management area, economic gains from 39 potential AUMs of livestock grazing or 635 mbf annual timber cutting may not be realized. Recreation opportunity benefits would be the same as described in Alternative A for Wales Creek WSA.

Impacts to Other Resources

Impacts on soil, water, energy, mineral, lands, recreation, cultural, visual, wildlife, and fisheries resources are the same as discussed in Wales Creek, Alternative A except the impacts are on 11,380 acres in Hoodoo Mountain WSA.

HOODOO MOUNTAIN: ALTERNATIVE B

Impacts on Wilderness Resources

The discussion in Wales Creek, Alternative B on wilderness characteristics impact and on ecotype diversity and spatial distribution would also pertain to this area except on 11,380 acres.

Most of the 11,380 acres would be available for timber harvest. Cutting 635 mbf/year would cause a long term loss of naturalness and solitude values.

Timber harvest would create transitory range and allow grazing to increase on the 11,380 acres causing short and long-term impacts on wilderness values by expanding the need for motorized vehicles for herd management and for construction of range projects.

Energy and mineral exploration and development without special stipulations to protect solitude and natural values would cause short-term impacts, if no discoveries were made, from the use of motorized and seismic equipment. If discoveries were made, long-term impacts would result from access roads, drill pads, etc.

Utility and transportation corridor development in this WSA could result in long-term impacts on solitude and naturalness by altering the landscape and building the line and service road. The development would draw motorized use to the corridor.

Impacts on Soil and Water Resources

Soil and water resource impacts are the same as detailed in Wales Creek, Alternative B except on 11,380 acres. The effect of surface disturbing activities on water quality would possibly be significant in the wet areas of Cottonwood Meadows.

Impacts on Recreation Resources

Impacts are similar to those detailed in Wales Creek, Alternative B except that 635 mbf of annual timber harvest would result in a decrease in primitive recreation and an increase in motorized recreation.

Impacts on Range Resources

This alternative would allow the grazing of 184 AUMs. Impacts are similar to those described in Wales Creek, Alternative B.

Impacts on Forestry Resources

This alternative would allow the harvest of 635 mbf annually. Impacts are similar to those described in Wales Creek, Alternative B.

Impacts on Wildlife and Fisheries Resources

Wildlife impacts would be the same as detailed in Wales Creek, Alternative B except that there are no moose so a loss of moose habitat does not pertain in Hoodoo Mountain WSA and impacts would be on 11,380 acres.

Impacts on Socioeconomic Conditions

Economic impacts are similar to those detailed in Wales Creek, Alternative B except on 184 AUMs of grazing privilege and a timber harvest of 635 mbf. Timber harvest would create six jobs with a projected $119,904 in salaries.

Impacts on Other Resources

Impacts on energy, mineral, lands, cultural, and visual resources would be the same as discussed in Wales Creek, Alternative B except the impacts are on 11,380 acres in Hoodoo Mountain WSA.

HOODOO MOUNTAIN: ALTERNATIVE C

Impacts on Wilderness Resource

Impacts on wilderness would be the same as discussed in Wales Creek, Alternative C except the impacts would be on 11,380 acres in this WSA.

Hoodoo Mountain WSA is considered to be manageable for wilderness in the long term with this alternative. However even with this alternative, boundaries set on ownership lines adjacent to private land rather than on identifiable topographic breaks could be unwittingly crossed by motorized vehicles with resultant adverse effects on solitude and naturalness.

Impacts on Energy and Mineral Resources

New mineral entries or oil and gas leases would be disallowed if this alternative were chosen. There are no present unpatented mineral claims in the WSA. If this alternative were chosen, there would be a loss of 11,380 acres of low to moderate potential metallic mineral resources.

Impacts on Recreation Resources

ORV closure on 11,380 acres would not greatly impact snowmobiles or four-wheeled motorized vehicle users as present use is largely confined to existing roads. A total of 4.1 miles of vehicle ways would be closed such that some degree of opportunity for motorized recreation would be forgone. Most of the recreation use at present is not motorized vehicle dependent so that the estimated 200 visits per year would not decrease and could increase due to interest in the wilderness, at least for the short term. The degree of increase is not known at this time. Wilderness designation for 11,380 acres will allow maintenance of existing primitive recreation activity and backcountry hunting opportunities.

Impacts on Forest Resources

A potential of 635 mbf/year sustainable yield on 9,078 acres of commercial forest land would be forgone if this option were chosen.

Impacts on Wildlife and Fisheries Resources

The discussion of impacts on elk and deer in Wales Creek, Alternative C would also pertain to Hoodoo Mountain. There is no moose habitat in this WSA, so there would be no impact on moose populations.

Impacts on Socioeconomic Conditions

There would be no gain of 39 potential AUMs grazing capacity, 635 mbf/year of timber harvest would be forgone, and 11,380 acres removed from future mineral entry or lease as well as some minimal loss of hunting expenditures due to the closure of 4.1 miles of vehicle way in the WSA. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A for Hoodoo Mountain WSA.

Impacts on Other Resources

Impacts on water, soils, lands, cultural, visual, and range resources would be the same as discussed in Wales Creek, Alternative C except the impacts are on 11,380 acres in Hoodoo Mountain WSA.

HOODOO MOUNTAIN: ALTERNATIVE D

Under this alternative the impacts for 5,873 acres would be similar for resources described in Alternative C for Hoodoo Mountain WSA. On 5,507 acres not recommended for wilderness, the impacts would be similar for resources described in Alternative B for Wales Creek WSA.

Impacts on Wilderness Resources

Under this alternative, the narrow neck of land in the WSA's configuration would be impossible to manage as wilderness if the adjoining private lands were developed.

HOODOO MOUNTAIN: ALTERNATIVE E

Impacts on Wilderness Resources

A total of 9,680 acres would be available for timber harvest; however, during the life of the plan the acreage cut would be about the same amount as Alternative B. Therefore, impacts would be similar.

The impact of grazing on wilderness would be the same as Alternative A.

Energy and mineral exploration and development on 9,680 acres could cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc.

Recreation restrictions on motorized vehicle use on 1,700 acres will protect solitude and naturalness values over most of the special management area.

Wilderness values will receive some protection on 1,700 acres recommended for special management as the management direction would tend to safeguard those values. This would allow natural systems to continue with minimum impact from the development of other resources.

Utility and transportation corridor development would be considered for 9,680 acres and, if a line or road were to be built, could result in long-term impacts on solitude and naturalness by altering the landscape.

Impacts on Soil and Water Resources

The potential loss of soils due to surface disturbing activities would not occur on 1,700 acres. Road construction on 9,680 acres will cause short-term increases in sediment production in streams.

Impacts on Energy and Mineral Resources

Mineral activities on 1,700 acres would be impacted by this alternative. The lands would be closed or would carry restrictive stipulations on oil and gas leasing. Mineral development potential is low and the area would remain open to mineral entry. There would be special stipulations on 9,680 acres.

Impacts on Lands Program

Restricting transportation and utility corridors on 1,700 acres will cause a long-term decrease in possible corridor routes.

Impacts on Recreation Resources

Timber harvest and road construction on 9,680 acres will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land use and an increase in motorized recreation.

Special designation for 1,700 acres will allow for primitive, nonmotorized recreation activity.

Impacts on Cultural Resources

Increased resource management activities stimulate discovery of cultural sites on 9,680 acres. Less development on 1,700 acres would tend to safeguard undiscovered sites.

Impacts on Visual Resources

Timber harvest and road construction, oil and gas leasing on 9,680 acres with special stipulations, utility corridor development on 9,680 acres will cause long-term changes in the visual characteristics of the area.

Mineral development will cause short-term impacts that bring about evident changes in the landscape.

Impacts on Forest Resources

The total CFL available for harvest is reduced over the long-term due to special designations on 1,700 acres, much of which is classified as CFL.

Impacts on Range Resources

In the short-term and long-term management actions would increase the AUMs available for livestock grazing on 9,680 acres due to improved vegetative condition and increased timber harvest. Any increase in available AUMs on 1,700 acres would depend on special management direction prescribed for the area. The increase in AUMs in the Cottonwood drainage would not be all available for livestock use as portions of the drainage would not be open to an increase in grazing.

Impacts on Wildlife and Fisheries Resources

Special management on 1,700 acres would maintain or improve habitat quality over the long term.

Management activities on about 9,680 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, and increasing the destruction of habitat by road building and other resource development. The significance of these impacts would depend on the amount of road closure and limitations on timber harvesting resulting from management direction on these 9,680 acres.

Mineral development if allowed in riparian habitat will destroy habitat for many wildlife species and disrupt streambeds.

Short-term impacts to fisheries habitat will be caused when road construction disturbs streambeds.

Impacts on Socioeconomic Conditions

Forest management on 9,680 acres would create five jobs in the private sector for timber harvest, planting, and timber stand improvement. Secondary jobs of processing the timber would also be created. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A.

GALLAGHER CREEK (SECTION 202): ALTERNATIVE A

Impacts on Wilderness Resources

The management of the WSA as a special management area would prevent short-term degradation of wilderness values on all 4,257 acres. This alternative, however, would be less secure in its protection of wilderness values than would wilderness designation because surface disturbing resource uses would be allowable if in accordance with management goals.

Naturalness, solitude, and scenic values could be degraded or destroyed if surface disturbing activities such as fire suppression and mining operations were to occur. Likewise, vehicles allowed in accordance with management goals for other activities such as recreation and mining would have at least a periodic impact on natural and solitude values. Conversely, management goals for a special management area would likely protect wilderness values on much of the 4,257 acres.

Due to the small size of the 202 WSA and the abundant local supply of wilderness (3,431,339 acres in the region), nondesignation for this 202 WSA would have little effect on providing wilderness opportunities close to metropolitan areas or expanding the geographical distribution of the NWPS. Likewise, as all three ecosystems represented in the 202 WSA are well represented in the region and in the NWPS, its designation would not add to the diversity of the system (see Appendix Q).

Conclusion

Nondesignation of Gallagher Creek along with the establishment of a special management area would likely protect wilderness values on 4,257 acres in the short term. However, depending on management goals for the area, some disruption of these values could occur over the long term.

Impacts on Soil and Water Resources

The loss of highly erosive granitic soils due to surface disturbing activities on 4,257 acres would likely occur to only a minor degree if Best Management Practices were applied (see Appendix B). Impacts of mining activity, if allowed by special management goals, would adversely affect sedimentation and water quality on Gallagher Creek.

Impacts on Energy and Mineral Resources

The release of the 202 WSA from wilderness consideration may allow mineral exploration and development on 4,257 acres over the long term. Standard and special stipulations on oil and gas leases in the special management area would restrict exploration and development over the long term. However energy and mineral potentials are low.

Impacts on Lands Program

Restricting transportation and utility corridors on 4,257 acres would cause a long-term decrease in possible corridor routes in the Garnet Resource Area.

Impacts on Recreation Resources

Mineral development, if allowed, could cause both a short and long-term impact by disturbing scenery and recreation sites. Special management for 4,257 acres may result in an increase in primitive recreation opportunities.

Impacts on Cultural Resources

Although provisions for inventory, mitigation, or avoidance of impacts on cultural resources exist; surface disturbing activities could result in some disturbance or destruction of cultural values. Conversely, increased resource management activity will likely stimulate discovery of cultural sites.

Impacts on Visual Resources

Mineral development, if allowed, could cause short-term impacts that would bring about evident changes in the landscape.

Impacts on Forest Resources

The CFL (3,274 acres) within the 202 WSA would not be available for harvest in the short and long term.

Impacts on Range Resources

There is no authorized grazing in the 202 WSA at present. If the entire 4,257 acres were leased, 154 AUMs would be available. Grazing in this alternative is limited to existing use; therefore 154 potential AUMs would remain unleased.

Impacts on Wildlife and Fisheries Resources

Special management on 4,257 acres would maintain or slightly improve habitat quality over the long term if wildlife habitat improvement projects were allowed. If management goals did not allow such improvement projects, the habitat condition for elk can be expected to deteriorate as climax habitat increases in the 202 WSA. If mineral development is allowed in riparian habitat, the habitat for many wildlife species would be destroyed and streambeds disrupted.

Impacts on Socioeconomic Conditions

Economic gains from 154 potential AUMs of livestock grazing and 249 mbf annual timber harvest would not be available. The recreation opportunities provided under this alternative enhance the western lifestyle which incorporates backcountry activities and hunting.

GALLAGHER CREEK: ALTERNATIVE B

Impacts on Wilderness Resources

Selection of this alternative would give no special legislative protection to natural values on 4,257 acres. In the short term and long term alike, there would be some adverse effects on wilderness values. If resource development occurs, naturalness, solitude opportunities, and scenic values of those portions impacted would be permanently degraded or destroyed, affecting the wilderness qualities of the area.

A total of 3,274 acres of CFL would be available for timber management and 249 mbf would be cut annually. This would cause a long-term loss of naturalness and solitude values in portions of the 202 WSA.

Timber harvest would create transitory range allowing grazing to increase. This would cause both short and long-term impacts on wilderness values by expanding the need for motorized vehicles for herd management and for construction of range projects.

Energy and mineral exploration and development without special stipulations to protect solitude and natural values would cause short-term impacts, if no discoveries were made, from the use of motorized and seismic equipment. If discoveries were made, long-term impacts would result from access roads, pipelines, drill pads, etc.

Utility and transportation corridor development in this 202 WSA could result in long-term impacts on solitude and naturalness by altering the landscape and building the line and service road. The development would draw motorized use to the corridor.

Impacts on Soil and Water Resources

Unit management goals would not be able to mitigate the effects of surface disturbing activities on all 4,257 acres. Special practices would be required to prevent erosion on granitic soils.

Road construction from timber harvest and mining activities would cause short-term increases in sediment production in streams.

Impacts on Cultural Resources

Impacts on cultural resources under this alternative would be the same as Alternative A except there would likely be more surface disturbing activities permitted. This would result in more opportunity to discover cultural sites, but might result in an increase in site disturbance as well.

Impacts on Visual Resources

Mineral and forest resource development would cause short and long-term impacts that would bring about evident changes in the landscape.

Impacts on Forest Resources

This alternative would allow 249 mbf to be harvested annually and would permit the timely control of forest insect and disease outbreaks. This would protect the productivity of CFL both within and adjacent to Gallagher Creek.

Impacts on Range Resources

This alternative would allow the grazing of 154 AUMs. Forest harvest and mining activities which open up the forest canopy would allow an opportunity for an increase in grazing to use the transitory range thus created.

Impacts on Wildlife and Fisheries Resources

Wilderness benefits to wildlife such as decreased disturbance on elk and deer summer and fall habitat and natural vegetative changes would be forgone. There would be a loss of fall hunting season security cover depending on the goals of the timber harvest program. Wildlife could be displaced on 4,257 acres if the level of resource development exceeded an unquantifiable amount.

Management activities on about 4,257 acres will cause long-term impacts to wildlife summer and winter range by reducing security cover, thermal cover, and old-growth timber stands; disturbing riparian sites and areas where young are reared; increasing social intolerance and forage competition with livestock; and increasing the destruction of habitat by road building and other resource development.

Mineral development of riparian habitat will destroy habitat for many wildlife species and disrupt streambeds.

Short-term impacts to fisheries habitat would be caused by road construction disturbing streambeds.

Impacts on Socioeconomic Conditions

Selection of this alternative would benefit the economic picture by allowing for the grazing of 154 AUMs and the harvest of 249 mbf of timber annually. Forest management would create three primary jobs in the private sector for timber harvest, planting, and timber stand improvement. Secondary jobs of processing the timber would also be created.

Grazing management could contribute an increase in ranch income over the long term. Recreation on public lands will contribute about the same opportunities as in Alternative A. Mining on public lands will contribute jobs and money to the local economy.

GALLAGHER CREEK: ALTERNATIVE C

Impacts on Wilderness Resources

Selection of this alternative would best preserve the wilderness qualities on 4,257 acres in the Gallagher Creek 202 WSA. Its naturalness would be ensured over the long term and natural ecological changes would continue to occur. The 202 WSA's opportunities for solitude and primitive recreation would be best guaranteed for future visitor enjoyment. Preservation of wilderness values would in turn protect its scenic values. Potential ecotype diversity and spatial distribution advantages for adding the 202 WSA to the NWPS would be the same as in Alternative A. Gallagher Creek would not be manageable as wilderness. Its small size and topographical limitations preclude adequate screening of offsite impacts.

Impacts on Soil and Water Resources

Soil and water resources would be protected from degradation under this alternative.

Impacts on Energy and Mineral Resources

New mineral entries or oil and gas leases would be disallowed if this alternative were chosen. There also would be a loss of 4,257 acres of low potential energy and metallic mineral resources.

Impacts on Lands Program

Restricting transportation and utility corridors on 4,257 acres would cause a long-term decrease in possible corridor routes in the Garnet Resource Area.

Impacts on Recreation Resources

ORV closures on 4,257 acres would not impact snowmobiles or four-wheeled motorized vehicle users as present use is mostly confined to existing roads. Most of the recreation use at present is not dependent on motorized vehicles so that the estimated 100 visitors per year would not decrease and could increase due to interest in the wilderness, at least for the short term. The degree of increase is not known at this time. Wilderness designation for 4,257 acres will allow maintenance of existing primitive recreation activity and backcountry hunting opportunities.

Impacts on Cultural Resources

Selection of this alternative would result in far less surface disturbing activity and therefore a decrease in disturbance of cultural sites on 4,257 acres. There would possibly be some adverse effect on cultural resources from recreational use of the areas used by prehistoric and historic inhabitants of the area which also attract modern visitors. Inventory conducted prior to formal designation would help to identify sensitive areas for later management.

Impacts on Visual Resources

This alternative would have the least adverse impact to visual resources in either the short or long term.

Impacts on Forest Resources

A potential of 249 mbf/year sustainable yield on 3,274 acres of commercial forest land would be forgone if this alternative were chosen.

Impacts on Range Resources

Impacts on range resources would be the same as detailed in Alternative A.

Impacts on Wildlife and Fisheries Resources

Wilderness designation would result in more intensive habitat management adjacent to the 202 WSA such as clearcutting for forage production. This would result in a greater seasonal shift of elk and deer away from the 202 WSA in late spring and summer to use this additional forage with a greater number of animals using the area in fall hunting season for security cover. It would probably not be used by elk and deer to any significant degree in winter and early spring. Basically, the wildlife population shifting would occur not so much because of wilderness designation but rather due to increased intensity of habitat management outside the 202 WSA to offset wilderness management inside.

Impacts on Socioeconomic Conditions

A total of 154 potential AUMs of grazing capacity would not be available for livestock use, 249 mbf/year of timber harvest would be forgone, and 4,257 acres would be removed from future mineral entry or lease resulting in a net decrease of income to the area. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A.

GALLAGHER CREEK: ALTERNATIVE D

Impacts on Wilderness Resources

Under this alternative, the impacts would be the same as described in Alternative C on 3,577 acres in the Gallagher Creek drainage.

A total of 680 acres would be available for timber harvest. Impacts would be similar to those detailed in Alternative B.

Grazing would be the same as Alternative A.

Energy and mineral exploration and development on 680 acres would cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc.

Wilderness values will receive protection on 3,577 acres of public lands allowing natural systems to continue with minimum impact from the development of other resources.

Utility and transportation corridor development would be considered only after careful study for 680 acres and, if a line or service road were to be built, could result in long-term impacts on solitude and naturalness by altering the landscape.

Gallagher Creek would not be manageable as wilderness in the long term. Its small size and topographical limitations preclude adequate screening of offsite impacts.

Impacts on Soil and Water Resources

Road construction could cause short-term increases in sediment production in streams within the 680 acres recommended for nonwilderness.

Impacts on Energy and Mineral Resources

Wilderness designation will cause long-term impacts by excluding energy and mineral exploration and development on 3,577 acres in the low potential area.

This alternative would allow oil and gas leasing with special stipulations on 680 acres.

Impacts on Lands Program

Excluding transportation and utility corridors on 3,577 acres will cause a long-term decrease in possible corridor routes within the Garnet Resource Area.

Impacts on Recreation Resources

Timber harvest and road construction on 680 acres will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation.

Wilderness designation for 3,577 acres will allow primitive recreation activity and backcountry hunting opportunities but would exclude motorized vehicle recreation from these lands.

Impacts on Cultural Resources

Impacts on cultural resources would be the same as Alternative C except there would be more surface disturbing activities permitted on 680 acres. Increased resource management activities would stimulate discovery of cultural sites on that acreage but would also increase the potential for site destruction.

Impacts on Visual Resources

Timber harvest and road construction, oil and gas leasing with special stipulations, and possibly utility corridor development on 680 acres will cause long-term impacts that bring about some evident change in the landscape.

Mineral development on 680 acres will cause short-term impacts that bring about evident changes in the landscape.

Impacts on Forest Resources

The annual forest harvest is reduced over the long term due to wilderness on 3,577 acres many of which are classified as CFL.

Impacts on Range Resources

Wilderness designation would likely maintain the status of no authorized grazing. As an increase in grazing leasing is not contemplated under this alternative, there would be no impact on the range resource.

Impacts on Wildlife and Fisheries Resources

Management activities on 680 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, and increasing the destruction of habitat by road building and other resource development. The significance of those impacts would depend on the amount of road closure and limitations on timber harvest resulting from management on those 680 acres.

Mineral development, if allowed in riparian habitat, will destroy habitat for many wildlife species and disrupt streambeds.

Short-term impacts to fisheries habitat will be caused when road construction disturbs streambeds. Impacts on 3,577 acres would be the same as detailed in Alternative C.

Impacts on Socioeconomic Conditions

Selection of this alternative would benefit the economic picture by allowing for mining and timber harvest on 680 acres. Forest management would create one primary job in the private sector cutting, planting, and improving timber stands as well as some secondary jobs processing the timber. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A.

GALLAGHER CREEK: ALTERNATIVE E

Impacts on Wilderness Resources

A total of 2,500 acres of CFL would be available for timber harvest; however, during the life of the plan the acreage cut would be about the same amount as Alternative B. Therefore, impacts would be similar.

The impact of grazing on wilderness would be the same as Alternative A.

Energy and mineral exploration and development on 3,257 acres could cause short and long-term impacts to wilderness values by use of motorized vehicles and development at discovery sites including roads, drill pads, etc.

Recreation restrictions on motorized vehicle use on 1,000 acres will protect solitude and naturalness values over some of the special management area.

Wilderness values will receive some protection on 1,000 acres recommended for special management as the management direction would tend to safeguard those values. This would allow natural systems to continue with minimum impact from the development of other resources.

Utility and transportation corridor development would be considered for 3,257 acres and, if a line or service road were to be built, could result in long-term impacts on solitude and naturalness by altering the landscape.

Impacts on Soil and Water Resources

The potential loss of soils and water quality due to surface disturbing activities would be less likely to occur on 3,257 acres due to special management restrictions. Road construction on 3,257 acres will cause short-term increases in sediment production in streams.

Impacts on Energy and Mineral Resources

Mineral activities on 1,000 acres would be impacted by this alternative. The lands would be closed or would carry restrictive stipulations on oil and gas leasing. Mineral development potential is low and the 202 WSA would remain open to mineral entry. There would be special stipulations on 3,257 acres.

Impacts on Lands Program

Restrictions on transportation and utility corridors on 4,257 acres will cause a long term decrease in possible corridor routes in the Garnet Resource Area.

Impacts on Recreation Resources

Timber harvest and road construction on 3,257 acres will have long-term impacts on dispersed recreation causing both a decrease in opportunities associated with undeveloped land and an increase in motorized recreation.

Special management for 1,000 acres will allow for an increase in primitive recreation activity.

Impacts on Cultural Resources

Increased resource management activities would stimulate discovery of cultural sites on 3,257 acres. Less development on 1,000 acres would tend to safeguard undiscovered sites.

Impacts on Visual Resources

Timber harvest and road construction, oil and gas leasing with special stipulations, and utility corridor development on 3,257 acres could cause long-term impacts that bring about some evident change in the landscape.

Mineral development could cause short-term impacts that bring about evident changes in the landscape.

Impacts on Forest Resources

The total CFL available for harvest is reduced over the long-term due to special management on 1,000 acres.

Impacts on Range Resources

In the short and long term, management actions would increase the AUMs available for livestock grazing on 3,257 acres due to improved vegetative condition and increased timber harvest. However as this alternative calls for no increase in grazing in the area, those additional AUMs would not be utilized.

Impacts on Wildlife and Fisheries Resources

Special management on 1,000 acres would maintain or improve habitat quality over the long term.

Management activities on about 3,257 acres will cause long-term impacts to wildlife summer range by reducing security cover and old-growth timber stands, disturbing areas where young are reared, and increasing the destruction of habitat by road building and other resource development. The significance of these impacts would depend on the amount of road closure and limitations on timber harvest resulting from management direction on those 3,257 acres.

Mineral development, if allowed in riparian habitat, will destroy habitat for many wildlife species and disrupt streambeds.

Short-term impacts to fisheries will be caused when road construction disturbs streambeds.

Impacts on Socioeconomic Conditions

Forest management on 3,257 acres would create some jobs in the private sector for timber harvest, planting, and timber stand improvement. Secondary jobs of processing the timber would also be created. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A.

QUIGG WEST (SECTION 202): ALTERNATIVE A

Impacts on Wilderness Resources

The opportunity for the Forest Service and Congress to consider this tack-on as an addition to their RARE II Quigg area would be forgone with this alternative. Although Quigg West would add to the diversity, scenic quality, and wilderness quality of the adjoining national forest land now under wilderness study, it would not enhance its manageability or boundary configuration.

The management of the WSA as a special management area would prevent short-term degradation of wilderness values on all 520 acres. This alternative, however, would be less secure in its protection of wilderness values than would wilderness designation because surface disturbing resource uses would be allowable if in accordance with management goals.

Naturalness, solitude, and scenic values could be degraded or destroyed if surface disturbing activities such as fire suppression and mining operations were to occur. Likewise, vehicles allowed in accordance with management goals for activities such as recreation and mining would have at least a periodic impact on natural and solitude values. Conversely, management goals for a special management area would likely protect wilderness values on much of the 520 acres.

Due to the small size of the 202 WSA and the abundant local supply of wilderness (3,431,339 acres in the region), nondesignation for this 202 WSA would have little effect on providing wilderness opportunities close to metropolitan areas or expanding the geographical distribution of the NWPS. Likewise, as all three ecosystems represented in the 202 WSA are well represented in the region and in the NWPS, its designation would not add to the diversity of the system (see Appendix Q).

Conclusion

Nondesignation of Quigg West along with the establishment of a special management area would likely protect wilderness values on 520 acres in the short term. However, depending on management goals for the area, some disruption of these values could occur over the long term.

Impacts on Soil and Water Resources

The loss of soils due to surface disturbing activities on 520 acres would likely occur to only a minor degree if Best Management Practices were applied (see Appendix B). Impacts of mining activity, if allowed by special management goals, would adversely affect sedimentation and water quality in the Rock Creek drainage.

Impacts on Energy and Mineral Resources

The release of the 202 WSA from wilderness consideration may allow mineral exploration and development on 520 acres over the long term. Standard and special stipulations on oil and gas leases in the special management area would restrict exploration and development over the long term.

Impacts on Lands Program

Restricting transportation and utility corridors on 520 acres would cause a slight long-term decrease in possible corridor routes in the Garnet Resource Area.

Impacts on Recreation Resources

Mineral development, if allowed, could cause both a short and long-term impact by disturbing scenery and recreation sites. Special management for 520 acres may result in an increase in primitive recreation opportunities.

Impacts on Cultural Resources

Although provisions for inventory, mitigation, or avoidance of impacts on cultural resources exist; surface disturbing activities could result in some disturbance or destruction of cultural values. Conversely, increased resource management activity will likely stimulate discovery of cultural sites.

Impacts on Visual Resources

Mineral development, if allowed, could cause short-term impacts that would bring about evident changes in the landscape.

Impacts on Forest Resources

The CFL on 284 acres within the 202 WSA would not be available for harvest in the short and long term.

Impacts on Range Resources

There is no authorized grazing in the tack-on at present. If the entire 520 acres were leased, 20 AUMs would be available. Grazing in this alternative is limited to existing use; therefore 20 potential AUMs would remain unleased.

Impacts on Wildlife and Fisheries Resources

Special management on 520 acres would maintain or slightly improve habitat quality over the long term if wildlife habitat improvement projects were allowed. If management goals did not allow such improvement projects, the habitat condition for deer and elk can be expected to deteriorate as climax habitat increases in the 202 WSA. If mineral development is allowed in riparian habitat, the habitat for many wildlife species would be destroyed and streambeds disrupted.

Impacts on Socioeconomic Conditions

Economic gains from 20 potential AUMs of livestock grazing and 15 mbf annual timber harvest would not be available. The recreation opportunities provided under this alternative enhance the western lifestyle which incorporates backcountry activities and hunting.

QUIGG WEST: ALTERNATIVE B

Impacts on Wilderness Resources

Selection of this alternative would give no special legislative protection to natural values on 520 acres. In the short term and long term alike, there would be some adverse effects on wilderness values. If resource development occurs, naturalness, solitude opportunities, and scenic values of those portions impacted would be permanently degraded or destroyed, affecting the wilderness qualities of this tack-on.

Most of the 284 acres of CFL would be available for timber management and 15 mbf would be cut annually. This would cause a long-term loss of naturalness and solitude values.

Timber harvest would create transitory range allowing grazing to occur. This would cause both short and long-term impacts on wilderness values by expanding the need for motorized vehicles for herd management and for construction of range projects.

Energy and mineral exploration and development without special stipulations to protect solitude and natural values would cause short-term impacts, if no discoveries were made, from the use of motorized and seismic equipment. If discoveries were made, long-term impacts would result from access roads, drill pads, etc.

Utility and transportation corridor development in this 202 WSA could result in long-term impacts on solitude and naturalness by altering the landscape and building the line and service road. The development would draw motorized use to the corridor.

Impacts on Soil and Water Resources

Unit management goals would not be able to mitigate the effects of surface disturbing activities on all 520 acres. Special practices would be required to prevent soil erosion.

Road construction from timber harvest and mining activities would cause short-term increases in sediment production in streams.

Impacts on Energy and Mineral Resources

This alternative would allow the greatest degree of unrestricted energy and mineral exploration and development.

Impacts on Lands Program

There would be no restrictions on possible siting of transportation or utility corridors on any of the 520 acres of this area.

Impacts on Recreation Resources

Those opportunities associated with a roadless experience would be forgone.

Timber harvest of 15 mbf annually and associated road construction will have long-term impacts on dispersed recreation causing both a decrease in recreation opportunities associated with undeveloped land and an increase in motorized recreation.

Mineral, oil and gas, and transportation and utility corridor development could cause short and long-term impacts by disturbing recreation sites.

Opening the area for multiple use would cause a long-term increase in seasonal motorized recreation and long-term decrease in primitive recreation.

Impacts on Cultural Resources

Impacts on cultural resources under this alternative would be the same as Alternative A except there would likely be more surface disturbing activities permitted. This would result in more opportunity to discover cultural sites, but might result in an increase in site disturbance as well.

Impacts on Visual Resources

Mineral and forest resource development would cause short and long-term impacts that would bring about evident changes in the landscape.

Impacts on Forest Resources

This alternative would allow 15 mbf to be harvested annually and would permit the timely control of forest insect and disease outbreaks. This would protect the productivity of CFL both within and adjacent to Quigg West.

Impacts on Range Resources

This alternative would allow the grazing of 20 AUMs. Forest harvest and mining activities which open up the forest canopy would allow an opportunity for an increase in grazing to use the transitory range thus created.

Impacts on Wildlife and Fisheries Resources

Wilderness benefits to wildlife such as decreased disturbance on elk and deer summer and fall habitat and natural vegetative changes would be forgone. The bighorn sheep population would likely be disturbed or displaced. There would be a loss of fall hunting season security cover depending on the goals of the timber harvest program. Wildlife could be displaced on 520 acres if the level of resource development exceeded an unquantifiable amount.

Management activities on about 520 acres will cause long-term impacts to wildlife summer and winter range by reducing security cover, thermal cover, and old-growth timber stands; disturbing riparian sites and areas where young are reared; increasing social intolerance and forage competition with livestock; and increasing the destruction of habitat by road building and other resource development.

Mineral development of riparian habitat will destroy habitat for many wildlife species and disrupt streambeds.

Impacts on Socioeconomic Conditions

Selection of this alternative would benefit the economic picture by allowing for the grazing of 20 AUMs and the harvest of 15 mbf of timber annually. Forest management would create some primary jobs in the private sector for timber harvest, planting, and timber stand improvement. Secondary jobs of processing the timber would also be created.

Grazing management could contribute an increase in ranch income over the long term. Recreation on public lands will contribute about the same opportunities as in Alternative A. Mining on public lands will contribute jobs and money to the local economy.

QUIGG WEST: ALTERNATIVES C, D, AND E

Impacts on Wilderness Resources

Selection of this alternative would best preserve the wilderness qualities on 520 acres in the Quigg West 202 WSA. Its naturalness would be ensured over the long term and natural ecological changes would continue to occur. The 202 WSA's exceptional opportunities for solitude and primitive recreation in conjunction with the adjacent Forest Service RARE II area would be best guaranteed for future visitor enjoyment. Preservation of wildlife values would in turn protect its scenic values. Potential ecotype diversity and spatial distribution advantages for adding the 202 WSA to the NWPS would be the same as Alternative A.

The 520-acre 202 WSA would only be manageable in conjunction with the 60,500-acre Forest Service RARE II area, Quigg.

Impacts on Soil and Water Resources

Soil and water resources would be protected from degradation.

Impacts on Energy and Mineral Resources

New mineral entries or oil and gas leases would be disallowed if this alternative were chosen. There also would be a loss of 520 acres of low potential energy and medium potential metallic mineral resources.

Impacts on Lands Program

Restricting transportation and utility corridors on 520 acres would cause a slight long-term decrease in possible corridor routes in the Garnet Resource Area.

Impacts on Recreation Resources

ORV closures on 520 acres would not impact snowmobiles or four-wheeled motorized vehicle users as there is no present use. Recreation use is not dependent on motorized vehicles so that the estimated 25 visitors per year would not decrease and could increase due to interest in the wilderness, at least for the short term. The degree of increase is not known at this time. Wilderness designation for 520 acres will allow maintenance of existing primitive recreation activity and backcountry hunting opportunities.

Impacts on Cultural Resources

Selection of this alternative would result in far less surface disturbing activity and therefore a decrease in disturbance of cultural sites on 520 acres. There would possibly be some adverse effect on cultural resources from recreational use of the portions of the 202 WSA used by prehistoric, historic, and modern visitors alike. Inventory conducted prior to formal designation would help to identify sensitive areas for later management.

Impacts on Visual Resources

This alternative would have the least adverse impact to visual resources in either the short or long term.

Impacts on Forest Resources

A potential of 15 mbf/year sustainable yield on 284 acres of commercial forest land would be forgone if this alternative were chosen.

Impacts on Range Resources

Impacts on range resources would be the same as detailed in Alternative A.

Impacts on Wildlife and Fisheries Resources

Wilderness designation could result in more intensive habitat management adjacent to the 202 WSA such as clearcutting for forage production. This would result in a greater seasonal shift of elk and deer away from the 202 WSA in late spring and summer to use this new forage with a greater number of animals using the area in fall hunting season for security cover. It would probably not be used by elk and deer to any significant degree in winter and early spring. Basically, the wildlife population shifting would occur not so much because of wilderness designation but rather due to increased intensity of habitat management outside the 202 WSA to offset wilderness management inside. This alternative would best protect the bighorn sheep herd, which is dependent on a natural, quiet environment.

Impacts on Socioeconomic Conditions

The income from 20 potential AUMs of grazing capacity and 15 mbf/year of timber harvest would be forgone, and 520 acres would be removed from future mineral entry or lease. Recreation on public lands would be expected to contribute about the same opportunities as in Alternative A.

APPENDIX P

WILDERNESS OPPORTUNITIES WITHIN MONTANA

The following summaries list the current wilderness status for Montana. Table P-1 gives the status of wilderness study areas on public lands. Table P-2 lists areas still under wilderness study by other agencies. Table P-3 lists the wilderness recommendations that will be transmitted with the Garnet RMP/EIS. Table P-4 lists BLM wilderness study areas where the studies are complete and awaiting Presidential recommendations. Table P-5 lists wilderness recommendations pending before Congress for all agencies. Table P-6 lists the present Congressionally designated wilderness areas in Montana.

TABLE P-1

STATUS OF BLM AREAS UNDER WILDERNESS STUDY

BLM District	County	Unit Name	Unit Number	Total Acreage	Study Dates Start	Study Dates Complete
Butte	Beaverhead	Centennial Mtns.	—	30,030	Study postponed to parallel FS	
Butte	Silver Bow	Humbug Spires	—	11,175	Preliminary partial wilderness recommendation	
Lewistown	Valley	Bitter Creek	MT-064-356	59,660	1983	1985
Miles City	Rosebud	Zook Creek	MT-027-701	8,440	1981	1984
Miles City	Powder River	Buffalo Creek	MT-027-702	5,650	1981	1984
TOTAL BLM		NUMBER OF AREAS	5	114,955 ACRES		

TABLE P-2

OTHER AGENCY AREAS UNDER WILDERNESS STUDY

Agency	County(s)	Unit Name	Unit Number	Unit Acreage
FS	Ravalli	Tolan Creek	X1070	7,120
FS	Ravalli	Sleeping Child	X1074	21,713
FS	Ravalli	Swift Creek	1065	744
FS	Ravalli	Needle Creek	1066	1,175
FS	Ravalli	Selway-Bitterroot	1067	110,755
FS	Ravalli, Granite	Strong Mtn.	1808	103,975
FS	Ravalli	Blue Joint	1941	65,690
FS	Ravalli	Allan Mtn.	1946	102,386
FS	Lake	Swan River Island	LIFAA	540
FS	Flathead	Benchmark	X1126	6,494
FS	Flathead	Coal Ridge	X1127	16,471
FS	Flathead	Deadhorse	X1128	23,546
FS	Flathead	Standard Peak	X1129	7,774
FS	Flathead	Mt. Hefty	1481	13,751
FS	Flathead, Lincoln	Tuchuck	1482	19,820
FS	Flathead, Lincoln	Mt. Thompson Seton	TS483	71,750
FS	Lake, Missoula	Mission Additions	1500	2,320
FS	Flathead	Lebeau Creek•	L1507	5,410
FS	Flathead, Lake, Missoula, Powell, Lewis & Clark, Teton, Pondera, Glacier	Bear-Marshall-Scapegoat-Swan	1485	846,297
FS	Lincoln	Zulu Creek	X166	6,000
FS	Lincoln	Marston Face	X172	6,000
FS	Lincoln	Willard-Lake Estelle	1173	18,400
FS	Lincoln	Gold Hill (West)	X176	10,200
FS	Lincoln	Flagstaff Mt.	X690	10,200
FS	Lincoln	Roberts Mt.	X691	7,900
FS	Sanders	West Fork Elk Cr.	X692	4,800
FS	Sanders	Rock Creek	X693	400
FS	Lincoln	Buckhorn	1661	32,527
FS	Lincoln	Scotchman Peaks	1662	22,900
FS	Lincoln	Northwest Peaks	1663	13,000
FS	Sanders	Trout Creek	1664	31,800
FS	Sanders	Cataract	1665	27,200
FS	Lincoln	Grizzly Peak	1667	5,900
FS	Lincoln	Gold Hill	1668	10,800
FS	Sanders, Lincoln	Cabinet Face West	1670	12,000
FS	Sanders, Lincoln	Cabinet Face East	1671	54,900
FS	Sanders	Berray Mtn.	1672	8,600

Agency	County(s)	Unit Name	Unit Number	Unit Acreage
FS	Sanders	Government Mtn.	1673	8,600
FS	Sanders	Lone Cliff Smeads	1674	6,700
FS	Sanders	McNeeley	1675	8,800
FS	Sanders	McKay Creek	1676	14,100
FS	Sanders	Galena	1677	18,800
FS	Sanders	East Fork Elk Cr.	1678	5,400
FS	Sanders	Chippewa Creek	1682	2,100
FS	Lincoln	Roderick	1684	25,400
FS	Granite	Emerine	X1423	17,000
FS	Granite	Sapphires	1421	114,284
FS	Granite	Silver King	1424	53,200
FS	Granite	North Carp	1425	7,240
FS	Granite	Upper East Fork	1426	7,650
FS	Deer Lodge	Storm Lake	1427	9,660
FS	Granite, Powell	Flint Range	1428	53,230
FS	Granite, Powell	Dolus Lake	1429	9,100
FS	Silver Bow	Basin Creek	1430	9,400
FS	Silver Bow, Madison	Highlands	1431	20,360
FS	Jefferson, Silver Bow	O'Neil Creek	1432	7,700
FS	Jefferson	Whitetail	1433	53,280
FS	Jefferson	Haystack	1434	17,280
FS	Granite	Fred Burr	1435	6,700
FS	Sanders	McGregor Thompson	LILAQ	30,300
FS	Missoula	Petty Mtn.	X1202	8,170
FS	Missoula	Deep Creek	X1814	16,980
FS	Missoula	Rattlesnake	X1204	3,310
FS	Missoula	Reservation Divide	X1205	16,300
FS	Sanders	Baldy Mtn.	X1209	6,680
FS	Granite, Missoula	Ward Eagle	X1220	8,570
FS	Sanders	Teepee-Spring Cr.	X1786	15,250
FS	Sanders	Evans Gulch	X1811	8,830
FS	Sanders	Clear Creek	X1812	5,470
FS	Sanders	Maple Peak	1141	7,860
FS	Mineral	Stevens Peak	1142	700
FS	Mineral	Wonderful Peak	1152	1,600
FS	Mineral, Missoula	Hoodoo	1301	98,680
FS	Mineral	Meadow Cr-Upper N. Fork	1302	7,200
FS	Missoula	Marshall Peak	1781	9,400

Agency	County(s)	Unit Name	Unit Number	Unit Acreage
FS	Sanders	Cube-Iron-Silcox	1784	39,600
FS	Sanders	Sundance Ridge	1785	9,290
FS	Sanders, Mineral	Mount Bushnell	1790	43,070
FS	Sanders, Mineral	Cherry Peak	1791	39,800
FS	Mineral	Gilt Edge-Silver Creek	1792	11,200
FS	Sanders	Patricks Knob-N. Cut Off	1794	18,800
FS	Sanders	South Siegel-S. Cut Off	1795	15,600
FS	Sanders	North Siegel	1796	10,200
FS	Mineral	Marble Point	1798	13,210
FS	Mineral	Sheep Mtn.-St. Line	1799	40,700
FS	Missoula	Stark Mtn.	1800	14,140
FS	Missoula	Burdette	1803	16,380
FS	Missoula, Ravalli	Lolo Creek	1805	16,720
FS	Granite	Welcome Creek	1806	1,100
FS	Granite	Quigg	1807	85,170
FS	Missoula	Garden Point	1809	6,900
FS	Park, Sweetgrass, Stillwater	North Absaroka	1371	190,124
FS	Meagher, Park	Crazy Mtns.	1541	136,547
FS	Gallatin	Bridger Mtns.	1543	47,512
FS	Park	Republic Mtn.	1545	700
FS	Park	Chico Peak	1547	11,555
FS	Gallatin	Gallatin Divide	1548	202,920
FS	Gallatin	Dry Canyon	1550	42,160
FS	Park	Beartooth	1912	6,320
FS	Park	Reef	1914	2,300
FS	Park	Lionhead	1963	32,783
FS	Lewis & Clark, Broadwater	Hedges Mtn. & Middleman Mtn.	X1613 & 1612	34,344
FS	Lewis & Clark, Broadwater	Hellgate Gulch	X1614	18,178
FS	Lewis & Clark, Broadwater, Meagher	Cayuse Mtn.	X1615	19,415
FS	Lewis & Clark, Powell	Lincoln Gulch	1601	6,505
FS	Lewis & Clark	Anaconda Hill	1602	17,718
FS	Lewis & Clark	Specimen Creek	1603	11,484
FS	Lewis & Clark	Crater Mtn.	1604	9,319
FS	Lewis & Clark, Powell	Ogden Mtn.	1605	11,742
FS	Lewis & Clark, Powell	Nevada Mtn.	1606	50,780

Agency	County(s)	Unit Name	Unit Number	Unit Acreage
FS	Lewis & Clark, Powell	Jericho Mtn.	1607	10,077
FS	Lewis & Clark	Lazyman Gulch	1608	12,285
FS	Powell, Jefferson	Electric Peak	1609	46,536
FS	Lewis & Clark	Gates of the Mtns.	1610	11,983
FS	Lewis & Clark	Devils Tower	1611	7,207
FS	Broadwater, Meagher	Camas Creek	1616	28,919
FS	Broadwater, Meagher	Mount Baldy	1617	17,147
FS	Broadwater, Meagher	Grassy Mtn.	1618	6,453
FS	Meagher	Ellis Canyon	1619	14,558
FS	Broadwater, Meagher	Irish Gulch	1621	7,645
FS	Carbon	Lost Water	1362	9,800
FS	Carbon	Red Lodge Creek-Hellroaring	1363	17,842
FS	Carbon	Burnt Mtn.	1364	8,000
FS	Carbon, Stillwater	Fishtail-Saddleback Mtn.-West of Woodbine	1366 & 1369	16,560
FS	Carbon	Black Butte	1368	880
FS	Powder River	Cook Mtn.	1370	11,700
FS	Rosebud	King Mtn.	1372	11,900
FS	Carbon	Line Cr. Plateau	1911	20,680
FS	Carbon	Rock Creek	1913	400
FS	Lewis & Clark	Sawtooth	1721	15,500
FS	Cascade, Meagher	Tenderfoot-Deep Creek	1726	98,500
FS	Cascade	Pilgrim Creek	1727	50,000
FS	Cascade, Judith Basin	Paine Gulch	1728	8,500
FS	Cascade	Sawmill Creek	1729	12,800
FS	Judith Basin	TW Mtn.	1730	8,800
FS	Judith Basin, Cascade	Big Baldy	1731	44,200
FS	Judith Basin	Granite Mtn.	1732	10,580
FS	Judith Basin	Tollgate-Sheep	1733	27,000
FS	Judith Basin	Mount High	1735	33,000
FS	Choteau, Cascade, Judith Basin	Highwood-Baldy	1737	15,600
FS	Choteau, Judith Basin	Highwoods	1738	24,300

Agency	County(s)	Unit Name	Unit Number	Unit Acreage
FS	Meagher, Wheatland	Bluff Mtn.	1740	37,120
FS	Meagher	Spring Creek	1741	19,800
FS	Meagher	Box Canyon	1742	10,740
FS	Meagher	Castle Mtns.	1743	29,900
FS	Meagher	North Fork of Smith	1744	8,800
FS	Meagher	Calf Creek	1745	11,020
FS	Meagher	Eagle Park	1746	6,300
FS	Beaverhead	Beaver Lake	X1003	13,474
FS	Beaverhead	Saginaw Creek	X1004	8,738
FS	Beaverhead	Tash Peak	X1005	62,171
FS	Beaverhead	West Pioneers	X1006	91,790
FS	Beaverhead	Call Mtn.	X1009	10,184
FS	Beaverhead	Cattle Gulch	X1010	19,776
FS	Beaverhead	Fleecer	X1011	36,952
FS	Deer Lodge, Beaverhead	Granulated Mtn.	X1012	15,820
FS	Beaverhead	Bear Creek	X1015	8,247
FS	Beaverhead	Mckenzie Canyon	X1016	33,842
FS	Beaverhead	Sourdough Peak	X1017	14,843
FS	Beaverhead	Timber Butte	X1018	5,018
FS	Beaverhead	Dixon Mtn.	X1019	3,982
FS	Beaverhead	Four Eyes Canyon	X1020	6,856
FS	Madison	Sheep Mtn.	X1021	32,860
FS	Madison	Crockett Lakes	X1022	5,910
FS	Madison	Cherry Lakes	X1023	13,860
FS	Madison	Vigilante	X1024	16,831
FS	Madison, Beaverhead	Snowcrest Mtn.	X1025	97,633
FS	Madison	Black Butte	X1026	39,787
FS	Madison	Big Horn Mtn.	X1027	50,870
FS	Madison	Lone Butte	X1028	14,138
FS	Madison, Beaverhead	Freezeout Mtn.	X1029	95,338
FS	Beaverhead	Anderson Mtn.	X1942	30,191
FS	Beaverhead	Goat Mtn.	X1944	9,454
FS	Deer Lodge, Beaverhead	North Big Hole	1001	56,493
FS	Beaverhead	Torres Peak (East Pioneer)	1008	145,210

Agency	County	Unit Number	Unit	Acreage
FS	Madison	Middle Mtn.-Tobacco Roots	1013	96,279
FS	Madison	Potosi	1014	5,465
FS	Beaverhead	West Big Hole	1943	130,511
FS	Beaverhead	Italian Peak	1945	91,277
FS	Beaverhead	Garfield Mtn.	1961	42,777
FS	Beaverhead	Mt. Jefferson	1962	4,474
	TOTAL FS	NUMBER OF AREAS 181		5,610,911 ACRES
NPS	Big Horn	Big Horn Canyon	—	7,645
	TOTAL NPS	NUMBER OF AREAS 1		7,645 ACRES

"X" before the unit number indicates a new roadless area that was identified through the forest planning process, not through RARE II.

TABLE P-3

WILDERNESS RECOMMENDATIONS TRANSMITTED BY THIS REPORT

District	Resource Area	Plan Name	Unit Name	Unit Number	Total Acreage
Butte	Garnet	Garnet RA Resource Management Plan/EIS	Wales Creek	MT-074-150	11,580
Butte	Garnet	Garnet RA Resource Management Plan/EIS	Hoodoo Mtn.	MT-074-151A	11,380
Butte	Garnet	Garnet RA Resource Management Plan/EIS	Gallagher Creek	MT-074-151B	4,257
Butte	Garnet	Garnet RA Resource Management Plan/EIS	Quigg West	MT-074-155	520
	TOTAL BLM	NUMBER OF AREAS 4			27,737 ACRES

TABLE P-4

COMPLETED BLM WILDERNESS STUDIES AWAITING PRESIDENTIAL RECOMMENDATIONS

District	Resource Area	Plan Name	Unit Name	Unit Number	Total Acreage	Preliminary Recommendations (State Director)
Butte	Headwaters	Headwaters RA Resource Management Plan/EIS	Blind Horse Creek	MT-075-102	4,927	4,927 ac. nonsuitable
Butte	Headwaters	Headwaters RA Resource Management Plan/EIS	Chute Mtn.	MT-075-105	3,205	3,205 ac. nonsuitable
Butte	Headwaters	Headwaters RA Resource Management Plan/EIS	Deep Cr./Battle Cr.	MT-075-106	3,086	3,086 ac. nonsuitable
Butte	Headwaters	Headwaters RA Resource Management Plan/EIS	Black Sage	MT-075-115	5,926	5,926 ac. nonsuitable
Butte	Headwaters	Headwaters RA Resource Management Plan/EIS	Yellowstone River Island	MT-075-133	53	53 ac. nonsuitable
Miles City	Billings	Billings RA Resource Management Plan/EIS	Twin Coulee	MT-067-212	6,870	6,870 ac. nonsuitable
Miles City	Billings	Billings RA Resource Management Plan/EIS	Pryor Mountain	MT-067-206	16,927	16,927 ac. suitable
Miles City	Billings	Billings RA Resource Management Plan/EIS	Burnt Timber Canyon	MT-067-205	3,955	3,430 ac. suitable 525 ac. nonsuitable
Miles City	Billings	Billings RA Resource Management Plan/EIS	Big Horn Tack-on	MT-067-207	4,550	4,550 ac. nonsuitable
Butte	Dillon	Wilderness Planning Amendment/EIS for the Dillon RA	Ruby Mountains	MT-076-001	26,611	15,615 ac. suitable 10,996 ac. nonsuitable
Butte	Dillon	Wilderness Planning Amendment/EIS for the Dillon RA	Blacktail Mtns.	MT-076-002	17,479	10,986 ac. suitable 6,493 ac. nonsuitable
Butte	Dillon	Wilderness Planning Amendment/EIS for the Dillon RA	Farlin Creek	MT-076-034	1,139	610 ac. suitable 529 ac. nonsuitable
Butte	Dillon	Wilderness Planning Amendment/EIS for the Dillon RA	E. Fork Blacktail Deer Cr.	MT-076-007	6,180	6,180 ac. nonsuitable
Butte	Dillon	Wilderness Planning Amendment/EIS for the Dillon RA	Hidden Pasture Creek	MT-076-022	15,475	15,475 ac. nonsuitable
Butte	Dillon	Wilderness Planning Amendment/EIS for the Dillon RA	Bell Limekiln Canyons	MT-076-026	9,588	9,588 ac. nonsuitable
Butte	Dillon	Wilderness Planning Amendment/EIS for the Dillon RA	Henneberry Ridge	MT-076-028	9,756	9,756 ac. nonsuitable

District	Resource Area	Plan Name	Unit Name	Unit Number	Total Acreage	Preliminary Recommendations (State Director)
Butte	Dillon	Wilderness Planning Amendment/EIS for the Dillon RA	Axolotl Lakes	MT-076-069	6,578	6,578 ac. nonsuitable
Lewistown	Phillips	Missouri Breaks Wilderness Suitability Study/EIS	Cow Creek	MT-066-256	34,050	21,590 ac. suitable 12,460 ac. nonsuitable
Lewistown	Phillips	Missouri Breaks Wilderness Suitability Study/EIS	Antelope Creek	MT-066-266	9,600	9,600 ac. suitable
Lewistown	Valley	Missouri Breaks Wilderness Suitability Study/EIS	Burnt Lodge	MT-065-278	13,730	13,730 ac. suitable
Miles City	Big Dry	Missouri Breaks Wilderness Suitability Study/EIS	Seven Blackfoot	MT-024-657	20,250	5,710 ac. suitable 14,540 ac. nonsuitable
Miles City	Powder River	Missouri Breaks Wilderness Suitability Study/EIS	Terry Badlands	MT-024-684	43,165	29,020 ac. suitable 14,145 ac. nonsuitable
Lewistown	Judith	Missouri Breaks Wilderness Suitability Study/EIS	Woodhawk	MT-068-246	8,100	8,100 ac. nonsuitable
Lewistown	Havre	Missouri Breaks Wilderness Suitability Study/EIS	Ervin Ridge	MT-066-253	10,200	10,200 ac. nonsuitable
Miles City	Big Dry	Missouri Breaks Wilderness Suitability Study/EIS	Bridge Coulee	MT-024-675	5,900	5,900 ac. nonsuitable
Miles City	Big Dry	Missouri Breaks Wilderness Suitability Study/EIS	Musselshell Breaks	MT-024-677	8,650	8,650 ac. nonsuitable
	TOTAL BLM		NUMBER OF AREAS	26		294,950 ACRES

TABLE P-5

WILDERNESS RECOMMENDATIONS PENDING BEFORE CONGRESS (ALL AGENCIES)

Agency	County(s)	Unit Name	Unit Number	Unit Acreage
FS	The Forest Service is undergoing a reevaluation of its roadless areas through its forest planning process. Therefore, all FS RARE II recommendations for wilderness have been withdrawn pending the results of the individual forest plans. All forest plans are due by December 1985, and it is expected that the FS will submit its recommendations for wilderness to the President and Congress after that date. Until then, all roadless areas identified through RARE II in addition to new roadless areas identified through the forest planning process are considered study areas.			
FWS	Garfield	East Seven Blackfoot	FW-923-1	12,184
FWS	Phillips	Mickey Butte	FW-923-2	17,413
FWS	Phillips, Valley	Burnt Lodge	FW-923-3	22,976
FWS	Garfield	Billy Creek	FW-923-4	11,556
FWS	Garfield	West Seven Blackfoot	FW-923-5	7,096
FWS	Phillips	Antelope Creek	FW-923-6	5,382
FWS	Garfield	West Mill Creek	FW-923-7	11,896
FWS	Petroleum	Fort Musselshell	FW-923-8	8,303
FWS	Garfield	Sheep Creek	FW-923-9	12,424
FWS	Phillips	West Beauchamp	FW-923-10	6,736
FWS	Garfield	Wagon Coulee	FW-923-11	10,528
FWS	Petroleum	Alkali Creek	FW-923-12	6,592
FWS	Petroleum	Crooked Creek	FW-923-13	6,842
FWS	Garfield	East Hell Creek	FW-923-14	15,984
FWS	Garfield	East Beauchamp	FW-923-15	5,568
	TOTAL FWS	NUMBER OF AREAS 15		161,480 ACRES
NPS	Flathead, Glacier	Glacier	NP-915	917,600
NPS	Park, Gallatin	Yellowstone	NP-928	167,060
	TOTAL NPS	NUMBER OF AREAS 2		1,084,660 ACRES

TABLE P-6

STATUTORY WILDERNESS (ALL AGENCIES)

Agency	County(s)	Unit Name	Unit Number	Unit Acreage
BLM[1]	Madison	Bear Trap Canyon	—	6,000
	TOTAL BLM	NUMBER OF AREAS 1		6,000 ACRES
FS	Carbon, Stillwater, Sweet Grass, Park	Absaroka-Beartooth	NF 106	920,377
FS	Granite, Ravalli, Deer Lodge, Beaverhead	Anaconda-Pintlar	NF 003	157,874
FS	Flathead, Teton, Lewis & Clark, Powell	Bob Marshall	NF 005	1,009,356
FS	Lincoln, Sanders	Cabinets	NF 010	94,272
FS	Lewis & Clark	Gates of the Mtns.	NF 027	28,562
FS	Flathead, Lake	Great Bear	NF 107	286,700
FS	Missoula, Lake	Mission Mtns.	NF 050	73,877
FS	Missoula	Rattlesnake	1-801	20,000
FS	Lewis & Clark, Powell	Scapegoat	NF 073	239,296
FS	Ravalli	Selway-Bitterroot	NF 074	248,893
FS	Granite	Welcome Creek	NF 103	28,135
FS[1]	Madison	Lee Metcalf	—	259,000
	TOTAL FS	NUMBER OF AREAS 12		3,366,342 ACRES
FWS	Beaverhead	Red Rock Lakes	WR-036	32,350
FWS	Sheridan	Medicine Lake National Wildlife Refuge	WR-027	11,800
FWS	Phillips	UL Bend National Wildlife Refuge	WR-047	20,847
	TOTAL FWS	NUMBER OF AREAS 3		64,997 ACRES
NPS	N/A	N/A	N/A	N/A
State Administered	N/A	N/A	N/A	N/A

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[1] The 6,000-acre BLM-managed Bear Trap Canyon is one component of the 259,000-acre Lee Metcalf Wilderness. The other units in the wilderness are managed by the Forest Service.

APPENDIX Q
ECOSYSTEM REPRESENTATION

Table Q-1 shows the number of acres of each ecosystem found in the wilderness study areas in the Garnet Resource Area.

The following is a brief description of each ecosystem represented in the areas under study. These ecosystems are from *Bailey-Kuchler Ecosystem Classification System* (Kuchler 1964 and USDA, FS 1976).

DOUGLAS-FIR FOREST
(Pseudotsuga)

Physiognomy. Medium dense forest of medium tall needleleaf evergreen trees.

Dominants. Douglas-fir *(Pseudotsuga menziesii).*

Other Components. *Abies concolor, Larix occidentalis, Physocarpus malvaceous, Picea pungens, P. glauca* (northern part), *Pinus contorta, P. ponderosa* (lower elevations), *Populus tremuloides.*

Occurrence. Northern Rocky Mountains and Washington.

WESTERN SPRUCE, FIR FOREST
(Picea, Abies)

Physiognomy. Dense to open forests of low to medium tall needleleaf evergreen trees; open forests with a synusia of shrubs and herbaceous plants.

Dominants. Subalpine fir *(Abies lasiocarpa);* Englemann spruce *(Picea engelmannii).*

Other Components. *Arctostaphylos uva ursi, Arnica cordifolia, Calamogrostis canadensis, Carex* spp., *Larix lyallii, Menziesia ferruginea, Pinus albicaulis* (northern part), *P. contorta, Populus tremuloides, Pseudotsuga menziesii* (lower elevations), *Shepherdia canadensis, Symphoricarpos albus, Tsuga mertensiana* (western part), *Vaccinium* spp., *Xerophyllum tenax.*

Occurrence. High altitudes of northern Rocky Mountains and Washington.

ALPINE MEADOWS AND BARREN
(Agrostis, Carex, Festuca, Poa)

Physiognomy. Usually short grasses and sedges, dense to very open with extensive barren areas; many forbs.

Dominants. Bentgrass *(Agrostis* spp.*)*; sedges *(Carex* spp.*)*; hairgrass *(Deschampsia caespitosa)*; fescue *(Festuca viridula)*; woodrush *(Luzula spicata)*; mountain timothy *(Phleum alpinum)*; bluegrass *(Poa* spp.*)*; spike trisetum *(Trisetum spicatum).*

Other Components. *Achillea* spp., *Antennaria* spp., *Aquilegia* spp., *Arenaria* spp. *Castilleja* spp., *Draba* spp., *Erigeron compositus,* lichen spp., *Oxyria digyna, Pentstemon fruticosus, Phacelia* spp., *Phlox caespitosa, Polemonium* spp., *Polygonum* spp., *Potentilla diversifolia, Potentilla* spp., *Salix nivalis, Salix* spp., *Saxifraga* spp., *Selaginella* spp., *Sibbaldia procumbens, Sieversia turbinata, Solidago* spp.

Occurrence. Rocky Mountains, Cascade Range, Sierra Nevada.

As part of the Roadless Area Review and Evaluation II (RARE II) process, the Forest Service examined all wilderness and wilderness study areas in the United States for ecotype representation. They then assigned regional ecotype targets as a means of balancing ecotype representation. The highest target would have at least six wilderness areas of a specific ecotype.

The Forest Service lists six wilderness units either presently in the system or administratively endorsed representing the Douglas-fir Forest (011) ecotype; nine units in the Western Spruce, Fir Forest (014) ecotype; and five units of the Alpine Meadows and Barren (045) ecotype. They identified 76 Douglas-fir Forest; 109 Western Spruce, Fir Forest; and 5 Alpine Meadows and Barren units as potential additions to the National Wilderness Preservation System (NWPS).

As the region is well represented in the system, there is no necessity to designate these BLM study areas as wilderness solely to balance ecotype diversity.

TABLE Q-1
ECOSYSTEMS FOUND IN THE WILDERNESS STUDY AREAS IN THE GARNET RESOURCE AREA

Area Name	Acres of Douglas-fir Forest (011)	Acres of Western Spruce, Fir Forest (014)	Acres of Alpine Meadows and Barren (045)
Wales Creek	4,361	6,534	685
Hoodoo Mountain	1,418	7,127	2,977
Gallagher Creek	1,235	3,088	934
Quigg West	373	25	122

APPENDIX R
ANALYSIS OF RANCH BUDGETS

DEVELOPMENT OF BUDGETS

Average ranch budgets for four ranch sizes in the Garnet RA were developed from average budgets for this region developed for 1982 by the USDA Economic Research Service (ERS). Each ranch operation was categorized based on herd size information contained in the BLM's Range Management Automated System (RMAS). Ranch herd sizes within each category were averaged and the ERS budgets were modified based upon these herd sizes. These derived budgets are shown in Tables R-1 through R-12. These budgets were then used as the base information to be optimized in a ranch budget linear programming model. Once a baseline optimum level was established for each ranch size, the BLM grazing level was varied and the model was run again to determine the changes in ranch income over variable costs. This was done for no grazing and for the average changes in each ranch size category.

RANCH BUDGETS

Size Class 1

Size Class 1 includes ranches with fewer than 100 cattle. The average ranch in this class has a herd of 61 cattle, 24 cows per bull, a 92 percent calving rate, a 6 percent calf loss, a 2 percent cow loss, and an 11 percent replacement rate. It is projected that it would cost about $9,000 to produce about $16,000 worth of marketable cattle, if fixed costs are not considered. Table R-1 shows production receipts; Table R-2, variable costs; and Table R-3, fixed costs of an average ranch in Size Class 1.

Size Class 2

Size Class 2 includes ranches with 101 to 250 cattle. The average ranch in this class has a herd of 193 cattle, 25 cows per bull, a 90 percent calving rate, a 6.5 percent calf loss, a 1.7 percent cow loss, and an 11 percent replacement rate. It is projected that it would cost about $23,000 to produce about $49,000 worth of marketable cattle, if fixed costs are not considered. Table R-4 shows production receipts; Table R-5, variable costs; and Table R-6, fixed costs of an average ranch in Size Class 2.

Size Class 3

Size Class 3 includes ranches with 251 to 500 cattle. The average ranch in this class has a herd of 323 cattle, 25 cows per bull, a 90 percent calving rate, a 7.3 percent calf loss, a 1.7 percent cow loss, and an 11 percent replacement rate. It is projected that it would cost about $46,000 to produce about $82,000 worth of marketable cattle, if fixed costs were not considered. Table R-7 shows production receipts; Table R-8, variable costs; and Table R-9, fixed costs of an average ranch in Size Class 3.

Size Class 4

Size Class 4 includes ranches with over 500 cattle. The average ranch in this class has a herd of 770 cattle, 23 cows per bull, a 90 percent calving rate, a 5.8 percent calf loss, a 2 percent cow loss, and a 10 percent replacement rate. It is projected that it would cost about $66,000 to produce about $198,000 worth of marketable cattle, if fixed costs were not considered. Table R-10 shows production receipts; Table R-11, variable costs; and Table R-12, fixed costs of an average ranch in Size Class 4.

TABLE R-1

PRODUCTION RECEIPTS FOR AN AVERAGE RANCH IN SIZE CLASS 1

Production Item	CWT*	Price/Cwt	Number of Head	Total Value	Value/Brood Cow
Steer Calves	5.18	63.75	26	8,585.85	
Heifer Calves	4.96	55.25	19	5,206.76	
Cull Cows	10.00	36.15	6	2,169.00	
Total Receipts				15,961.61	261.66

*CWT = hundred weight

TABLE R-2

VARIABLE COSTS FOR AN AVERAGE RANCH IN SIZE CLASS 1

Item	Units	Number of Units	Price	Value	Cost/Brood Cow
Pub. Graz. BLM	AUMs	73	1.86	135.78	2.23
Private Range	AUMs	375	0	0	0
Past. Rent/Lease	AUMs	161	9.45	1,521.45	24.94
Hay (Produced)	TN	6.55	17.35	1,136.43	18.63
Hay (Purchased)	TN	8	63.12	504.96	8.28
Protein Supp.	TN	2.14	230.00	492.66	8.08
Barley	BU	105.84	2.15	227.56	3.73
Salt & Minerals	CWT	20.4	5.62	114.72	1.88
Vet Medicine	Dol	490.14	1.00	490.14	8.04
Trucking	Dol	100.80	1.00	100.80	1.65
Marketing	Dol	253.26	1.00	253.26	4.15
Hired Labor	Hr	0	4.10	0	0
Mach. Fuel & Lube				1,521.97	24.95
Mach. Repair				954.22	15.64
Equip. Fuel & Lube				52.92	.87
Equip. Repair				922.74	15.13
Interest on Opr. Capital	Dol	8,537.09	0.11	939.08	15.39
Total Variable Costs				9,368.69	153.59

TABLE R-3

FIXED COSTS FOR AN AVERAGE RANCH IN SIZE CLASS 1

Ownership Costs	Value	Cost/Brood Cow
Machinery	2,779.88	45.57
Equipment	3,572.60	58.58
Livestock	1,916.84	31.42
Land Taxes	389.58	6.39
Total Ownership Costs	8,658.90	141.96
Other Costs	11,208.98	183.75
Total of All Costs	29,236.57	479.29

TABLE R-4

PRODUCTION RECEIPTS FOR AN AVERAGE RANCH IN SIZE CLASS 2

Production Item	CWT*	Price/Cwt	Number of Head	Total Value	Value/Brood Cow
Steer Calves	5.18	63.75	80	26,418.00	
Heifer Calves	4.96	55.25	54	14,798.16	
Cull Cows	10.00	36.15	21	7,591.50	
Total Receipts				48,807.66	252.89

*CWT = hundred weight

TABLE R-5

VARIABLE COSTS FOR AN AVERAGE RANCH IN SIZE CLASS 2

Item	Units	Number of Units	Price	Value	Cost/Brood Cow
Pub. Graz. BLM	AUMs	116	1.86	215.76	1.12
Private Range	AUMs	1,218	0	0	0
Past. Rent/Lease	AUMs	600	9.45	5,670.00	29.38
Hay (Produced)	TN	49.75	18.00	895.50	4.64
Hay (Purchased)	TN	4.25	63.12	268.26	1.39
Protein Supp.	TN	4.2	230.00	966.00	5.00
Barley	BU	420.0	2.15	903.00	4.68
Salt & Minerals	CWT	70.9	5.62	398.46	2.06
Vet Medicine	Dol	2,062.0	1.00	2,062.00	10.68
Trucking	Dol	329.0	1.00	329.00	1.70
Marketing	Dol	826.0	1.00	826.00	4.28
Hired Labor	Hr	0	4.10	0	0
Mach. Fuel & Lube				3,176.41	16.46
Mach. Repair				2,013.84	10.43
Equip. Fuel & Lube				78.05	.40
Equip. Repair				1,069.19	5.54
Interest on Opr. Capital	Dol	37,343.95	0.11	4,148.91	21.50
Total Variable Costs				23,020.38	119.26

TABLE R-6

FIXED COSTS FOR AN AVERAGE RANCH IN SIZE CLASS 2

Ownership Costs	Value	Cost/Brood Cow
Machinery	6,870.43	35.60
Equipment	5,322.85	27.58
Livestock	6,384.77	33.08
Land Taxes	1,540.11	7.98
Total Ownership Costs	20,118.16	104.24
Other Costs	48,231.50	249.90
Total of All Costs	91,370.04	473.42

TABLE R-7

PRODUCTION RECEIPTS FOR AN AVERAGE RANCH IN SIZE CLASS 3

Production Item	CWT*	Price/Cwt	Number of Head	Total Value	Value/Brood Cow
Steer Calves	5.18	63.75	133	43,919.93	
Heifer Calves	4.96	55.25	93	25,485.72	
Cull Cows	10.00	36.15	35	12,652.50	
Total Receipts				80,058.15	254.05

*CWT = hundred weight

TABLE R-8

VARIABLE COSTS FOR AN AVERAGE RANCH IN SIZE CLASS 3

Item	Units	Number of Units	Price	Value	Cost/Brood Cow
Pub. Graz. BLM	AUMs	108	1.86	200.88	.62
Private Range	AUMs	2,080	0	0	0
Past. Rent/Lease	AUMs	1,061	9.45	10,026.45	31.04
Hay (Produced)	TN	333.35	18.00	6,000.30	18.58
Hay (Purchased)	TN	57	63.12	3,597.84	11.14
Protein Supp.	TN	7	230.00	1,610.00	4.98
Barley	BU	701.4	2.15	1,508.01	4.67
Salt & Minerals	CWT	118.4	5.62	665.41	2.06
Vet Medicine	Dol	3,443.00	1.00	3,443.00	10.66
Trucking	Dol	549.00	1.00	549.00	1.70
Marketing	Dol	1,379.00	1.00	1,379.00	4.27
Hired Labor	Hr	0	4.10	0	0
Mach. Fuel & Lube				5,304.60	16.42
Mach. Repair				3,363.11	10.41
Equip. Fuel & Lube				130.34	.40
Equip. Repair				1,785.55	5.53
Interest on Opr. Capital	Dol	62,364.40	0.11	6,860.08	21.24
Total Variable Costs				46,423.57	143.72

TABLE R-9

FIXED COSTS FOR AN AVERAGE RANCH IN SIZE CLASS 3

Ownership Costs	Value	Cost/Brood Cow
Machinery	11,473.61	35.52
Equipment	8,889.16	27.52
Livestock	10,662.56	33.01
Land Taxes	2,571.98	7.96
Total Ownership Costs	33,597.31	104.01
Other Costs	80,546.60	249.37
Total of All Costs	160,567.48	497.11

TABLE R-10

PRODUCTION RECEIPTS FOR AN AVERAGE RANCH IN SIZE CLASS 4

Production Item	CWT*	Price/Cwt	Number of Head	Total Value	Value/Brood Cow
Steer Calves	5.18	63.75	324	106,992.90	138.95
Heifer Calves	4.96	55.25	231	63,303.24	82.21
Cull Cows	10.00	36.15	77	27,835.50	36.15
Total Receipts				198,131.64	257.31

*CWT = hundred weight

TABLE R-11

VARIABLE COSTS FOR AN AVERAGE RANCH IN SIZE CLASS 4

Item	Units	Number of Units	Price	Value	Cost/Brood Cow
Pub. Graz. BLM	AUMs	192	1.86	357.12	.46
Private Range	AUMs	6,982	0	0	0
Past. Rent/Lease	AUMs	528	9.45	4,989.60	6.48
Hay (Produced)	TN	805	19.59	15,769.95	20.48
Hay (Purchased)	TN	62.5	63.12	3,945.00	5.12
Protein Supp.	TN	9.7	230.00	2,231.00	2.90
Barley	BU	2,144	2.15	4,609.60	5.99
Salt & Minerals	CWT	277	5.62	1,556.74	2.02
Vet Medicine	Dol	5,094.00	1.00	5,094.00	6.62
Trucking	Dol	2,145.00	1.00	2,145.00	2.79
Marketing	Dol	1,581.00	1.00	1,581.00	2.05
Hired Labor	Hr	2	4.10	8.20	.01
Mach. Fuel & Lube				6,505.74	8.45
Mach. Repair				4,966.74	6.45
Equip. Fuel & Lube				231.00	.30
Equip. Repair				3,001.01	3.90
Interest on Opr. Capital	Dol	80,442.60	0.11	8,848.69	11.49
Total Variable Costs				65,840.39	85.51

TABLE R-12

FIXED COSTS FOR AN AVERAGE RANCH IN SIZE CLASS 4

Ownership Costs	Value	Cost/Brood Cow
Machinery	17,223.25	22.37
Equipment	13,490.89	17.52
Livestock	24,970.02	32.43
Land Taxes	4,768.30	6.19
Total Ownership Costs	60,452.46	78.51
Other Costs	95,877.70	124.52
Total of All Costs	222,048.33	288.37

APPENDIX S

COORDINATING ELK AND TIMBER MANAGEMENT RECOMMENDATIONS FROM THE FINAL REPORT OF THE MONTANA COOPERATIVE ELK-LOGGING STUDY 1970-1985

SECURITY DURING LOGGING OPERATIONS

Recommendation

Preparation of timber sales in elk summer range should include planning to attain minimum losses in habitat security during the period of road construction and logging.

Findings and Discussion

Entry to an area occupied by elk, for any purpose, reduces the security of the habitat in that area. Research in four different studies compared elk responses to situations ranging from large scale logging operations with all roads continuously accessible to small operations in which roads were only open to the logging contractor. Elk responses to road building and logging demonstrated that significant losses in security can be minimized when appropriate restrictions are used by the land manager. The degree of security loss is directly related to the number of acres disturbed, to the length of time the disturbance continues, and to the timing of field operations.

Displacement of elk was detected as far as four miles from the cutting units in large timber sales in which roads were open to nonlogging traffic. In one study, herd displacement was to an adjacent drainage and then beyond that drainage when the ridgeline was disturbed. In another investigation, displacement was down a ridgeline for two miles through undisturbed timber and over a point. In both cases, topographic features provided line-of-sight barriers between elk and the logging activity. Conversely, during relatively small timber sales, and particularly when roads were only open to the logging contractor, displacement of elk was generally less than one-half mile from the center of logging activities. In all studies, the time required for elk to return to the disturbed habitat was directly related to the distance they were displaced.

Security for elk can be satisfied by any habitat in which animals do not feel threatened or a habitat in which they will remain in the face of disturbance. There are a variety of ways in which the manager can reduce the distance moved by elk and simultaneously increase the probability of immediate return by animals displaced:

> Disturbance by heavy equipment can be completed in the shortest possible time, and, if possible, during periods of the year when elk are not present. It has been shown, for example, that individual elk tend to use more level ground in early summer and move to steeper ground in the late summer and fall.
>
> Adjacent drainages or areas into which elk might be expected to move can be made more secure by road closures.
>
> Logging activity can be confined to a single drainage at a time and all work completed in the shortest possible time frame. Intensive activity over a single season has far less influence on elk than a low level of intensity continued over several seasons.
>
> Displacement of elk is significantly reduced where access to the timber sale area is limited and nonlogging traffic is controlled. Recreational use of firearms by anyone working within an area closed to the general public should be prohibited.

REDISTRIBUTION OF ELK

Recommendation

Timber sales should be planned in a manner that minimizes potential problems arising from temporal redistribution of elk onto adjacent or other nearby property.

Findings and Discussion

In all four of the areas in which elk response to timber sales was studied, some movement away from the sale area was recorded. On these areas, movement by elk created no specific problems because there was adequate space available. Nevertheless, timber sales may result in local modification of the way elk utilize their home ranges. Such modifications sometimes result in increased use of nearby private lands or public lands not normally used by elk. It is usually possible to achieve greater compatibility in land use if sale planning recognizes and attempts to minimize potential problems involving increased elk use on adjacent properties where elk presence is undesirable. Knowledge of habitat use patterns by local elk herds and the availability of other nearby habitats will benefit the land manager; consultation with state and federal wildlife biologists will also be of considerable benefit in such assessments.

TRADITIONAL HOME RANGE USE BY ELK

Recommendation

Before timber sales are established and new roads are constructed, information should be obtained concerning traditional use patterns and distribution of elk harvest so that cutting can be timed and roads placed to have the least undesirable effect on both elk and elk hunting.

Findings and Discussion

Elk are very traditional in the way they distribute themselves over time and space. Home range size and shape vary considerably among individuals and areas, but there is comparatively little variation in the size and shape of home ranges used by the same animal from year to year. This is true for individuals and for herds as well. Data from frequent relocations of many elk over the course of several years has demonstrated annual home ranges varying from about 5 to nearly 200 square miles, but variations in the location of individual animals in consecutive seasons was very low. Individual elk usually use the same winter and summer areas from year to year throughout their lifetime; this traditional elk use of an area can override normal caution in an area rendered temporarily unsuitable by disturbance and habitat alteration.

Roading and logging of an area with high traditional elk use could lead to undesirable overharvest and a severe decline of the herd if hunting seasons and/or road closures are not adjusted to compensate for the reduction in habitat security. Studies of wildlife throughout the world have shown that habitat preference is learned as well as innate. This learned preference, called habitat imprinting, may be as important a consideration in elk habitat management as innate preferences. If, over several years, mortality of adult cows exceeds recruitment in a group of elk traditionally using a particular area, elk use of that area may decline to zero. Because elk are slow to pioneer and become established in a new area, local elimination may require many years before elk use is reestablished.

ROAD CONSTRUCTION AND DESIGN

Recommendation

As a part of the location and design of transportation systems, existing habitat occupancy and movement patterns and probable elk crossing areas should be identified and provisions made to maintain security for unimpeded movement.

Findings and Discussion

Both the location and density of forest roads have been shown to be disturbing to elk security on most elk ranges in North America. On study areas in Montana, most of the elk use of sideslopes in moderate to large drainages occurred above the lower third of the slope. In drainage headwaters the lower third of the slope appeared to provide the most important habitat. Elk travel routes from one drainage to another crossed ridges through saddles and were often easy to identify. Road construction in these sites resulted in declines or elimination of elk use of such crossings. Elk have also exhibited a preference for crossing ridges in sections where visibility is low and security high, often where dense timber and/or topographic visual obstructions are present. Alteration of such crossing areas can be especially critical during the hunting season.

While any road constructed will tend to reduce the security level of existing elk habitat, losses in security can be significantly reduced if initial road designs and locations recognize existing elk behavior, habitat use, and probable response to new roads. A number of considerations can help to minimize the loss of habitat security:

> Locate permanent and high volume traffic roads in those areas least used by elk.
>
> Design secondary roads, in both construction and layout, to facilitate eventual closure. This is particularly important where roads enter drainage heads.
>
> Maintain frequent dense cover areas adjacent to the road.
>
> Avoid road construction in saddles or low divides frequented by elk in crossing ridges between drainages.
>
> Construct roads to the lowest standard that will meet management objectives. In important elk range this usually implies a low-speed, single-track construction without large cut slopes, fills, or straight stretches.
>
> Dispose of road right-of-way slash so it does not inhibit elk movement.
>
> Locate roads, even temporary roads, to avoid disturbance of moist sites and other areas of concentrated use by elk.
>
> Avoid areas of important elk winter range.

ROAD MANAGEMENT

Recommendation

Where maintenance of elk habitat quality and security is an important consideration, open road densities should be held to a low level, and every open road should be carefully evaluated to determine the possible consequences for elk.

Findings and Discussion

It has been repeatedly documented, in Montana and elsewhere throughout North American elk range, that vehicle traffic on forest roads evokes an avoidance response by elk. Even though the habitat near forest roads is fully available to elk, it cannot be effectively utilized. Declines in elk use have been detected as far as two miles from open roads, but significant reductions in habitat effectiveness are usually confined to an area within a half mile. The loss of habitat effectiveness has been shown to be greatest near primary roads and least near primitive roads, greatest where cover is poor and least where cover is good, and greater during the hunting season than at any other time of the year. As a general average, habitat effectiveness can be expected to decline by one-fourth when open road densities are one mile per section and by one-half when road densities are two miles per section. Losses in habitat effectiveness for elk can be at least partially mitigated by imposing strict design and location standards during road construction. Losses can be greatly reduced through appropriate traffic control and road closures.

Roads, and the people and traffic associated with them, have a more significant influence on elk security than most other factors combined. Few considerations in forest management appear to provide a better opportunity for immediate mitigation in the management of elk habitat than road closures.

Some roads are needed for timber harvest, recreation, fire control, firewood cutting, and a variety of other purposes, including access by hunters. Where the maintenance of elk habitat security is an important consideration, requirements for public access should be identified prior to road design and construction, and all roads remaining open should be essential to an identified need.

Criteria for Road Closure Selections

Available data demonstrate that every road constructed in elk habitat is a potentially negative influence for elk. It is also clear that some roads are more disturbing than others. When choices are possible, the following criteria are suggested as guides for selection of roads to be closed in areas where elk habitat is an important consideration. As a general rule, yearlong closure is preferred to seasonal closure, but some specific advantages are possible with certain seasonal closures as noted. High priorities for closure include:

> roads in the heads of drainages, saddles, and low divides;
>
> roads through moist areas and wet meadows;
>
> loop roads that encourage through traffic;
>
> trunk roads with many dead-end side roads under one-half mile in length;
>
> midslope roads in the lower two-thirds of the drainages (especially in fall);
>
> roads in known calving areas (especially in spring);
>
> roads in winter range concentration areas (especially in winter); and
>
> roads in areas with poor cover (especially in fall).

AREA CLOSURES DURING THE HUNTING SEASON

Recommendation

Elk management goals and objectives should be clearly defined before imposing travel restrictions.

Findings and Discussion

Two studies in Montana involved area closures that restricted motor vehicles to a few selected roads during the general hunting season. Several other studies involved radio tracking of one or more elk during the hunting season.

The Judith Road Closure Study indicated that travel restrictions did not change elk distribution or temporal distribution of hunters. Apparently this area closure was not needed to "protect" elk where escape cover was adequate and well distributed (at least two-thirds cover to one-third open). Hunters spent more time walking; consequently they reported seeing and killing more elk under the restrictions than during the unrestricted control seasons. Their unsolicited comments showed a preference for limited access because of the "higher quality" hunt it afforded.

The Ruby Road Closure Study, on the other hand, showed that area closures can cause significant changes in elk distribution and hunter use of an area. This area was characterized by a relatively open, broken forest, with gentle terrain and easy access (one-third cover to two-thirds open). During seasons of restricted vehicle access, elk stayed in the restricted area longer and in greater numbers than during seasons of unrestricted access. This resulted in a more even distribution of hunting pressure, elk sightings, and elk harvest through the season, but did not increase total amounts. Hunters also spent more time walking during the restriction period. Most hunters interviewed believed that the area closure had increased the quality of their hunt.

Road density and pattern, including off-road travel, play an important role in determining the security level an area provides to elk during the hunting season. An area with sparse cover and low road densities may provide as much security as the same sized area with heavy cover and high road densities. In the Ruby portion of this study, the security level was significantly increased by reducing the number of open roads and eliminating off-road travel. Road density and cover quality are both important when considering adequate elk security during the hunting season. Managers should be especially cognizant of the following:

> Restrictions will increase the time hunters spend walking, and as a result increase the number of animals seen and possibly increase the kill. They also will generally be accepted as providing a higher quality hunt, make retrieval of downed animals more difficult, and require time and money for implementation and enforcement.

Where cover is poor (one-third or less of total area) and road densities are high (more than one-half mile of road per square mile), restrictions will likely reduce harrassment and emigration of elk and reduce the early elk harvest, but increase the uniformity of harvest throughout the season.

Where cover is good (at least two-thirds of total area) and open road densities are low (less than one-half mile of road per square mile), restrictions will probably have less influence on elk distribution and elk harvest. Where possible, elk will seek security at least a mile from open roads.

CLEARCUTS

Recommendation

In order to assure that forage produced in clearcuts is in fact available for use by elk, openings should satisfy the following criteria:

Slash cleanup inside the clearcuts should reduce average slash depths below 1.5 feet. Slash in excess of 1.5 feet will reduce elk use by more than 50 percent.

Openings should be small, even though openings up to 100 acres may be acceptable where the adjacent forest edge supplies adequate security.

In western Montana, some security cover is provided within openings by vegetation growth, and elk use increases in older cuttings. In central Montana, the younger openings are preferred by elk; security should be provided by designing clearcuts so that the best available cover occurs at the uncut edge. Thinning adjacent to clearcuts is not recommended.

Additional security, which will significantly increase elk use of clearcut openings, can be provided with appropriate road closures.

Findings and Discussion

Graphic analyses of the density of elk pellet groups inside clearcuts in central and western Montana have identified several variables that influence elk use of these openings. The relative importance of different variables depends on the environment available to elk and the behavioral patterns associated with their use of that environment.

In central Montana, large natural openings are a normal component of both summer and winter ranges. Elk inhabiting these areas are far more tolerant of large clearcuts than elk in western Montana where large natural openings are unusual. A preference for small openings was indicated, particularly in western Montana, but cutting units as large as 100 acres may be acceptable when the adjacent forest edge supplies adequate cover.

Throughout Montana elk ranges, slash within the opening was one of the most important determinants of elk use. There was no indicated preference among slash disposal methods as long as average slash depths were reduced below 1.5 feet. Broadcast burning, however, is considered preferable to mechanical methods.

Elk response to vegetation growth inside an opening differs between central and western Montana in a way clearly related to the habitual feeding behavior of elk in the respective areas. In the west, where new growth consists of both trees and shrubs and available forage is often browse plants, elk use of openings increases as vegetation height increases. Eastward, where new growth is mostly limited to trees, and available forage is primarily grasses and forbs, elk use of openings declines as tree heights increase and understory plants are shaded. Corollary to the indicated preference for openings lacking tall cover, central Montana elk require the greater security provided by good cover at the edge of the opening. These elk also demonstrate a positive response to openings without vehicle access.

Available data do not demonstrate that clearcuts in any configuration are clearly beneficial to elk, although it is known that forage production is increased in openings. Neither is it possible to show that clearcuts have detrimental effects if the opening can be developed without reducing overall habitat security for elk.

COVER TYPE

Recommendation

Management efforts for timber and elk should be coordinated to recognize the importance of cover type in addition to habitat type. Important or key areas for elk should be identified on a site-specific basis during the planning and implementation of silvicultural practices.

Findings and Discussion

Although various classification systems, such as habitat typing, give a reasonable description of forest community composition and ecological potential, the structural characteristics or cover types can vary considerably within the classifications over time. Elk use of cover types is often specific, changing in both space and time during summer and fall. For example, moist sites may be highly preferred from June through September but not necessarily sought out in October and November. Relatively advanced seral stages and more dense timber stands may not be as important June through August as in the fall months. Cover type is usually more important than habitat type in determining elk use during summer and fall.

MOIST SITES

Recommendation

Moist summer range sites, in combination with other habitat components which are heavily used by elk, should be identified and the overall integrity of these habitat components should be maintained.

Findings and Discussion

Findings from all study areas indicate that elk prefer moist sites during the summer months (June through September). Preferred elk summer range exists when these moist sites are interspersed with other necessary habitat components, including a diversity of timber types and densities, especially near drainage heads. Such sites are often found at the heads of drainages, bordering streams or marshy meadows, or occupying moist swales or benches. These sites are usually found within the *Abies lasiocarpa* habitat type series (USDA, FS 1977) both east and west of the Continental Divide. In central Montana, these sites are usually found within the Abla-Caca, Abla(Pial)-Vasc, Abla-Vasc (Thoc), and Abla-Luhi habitat types. In western Montana, moist sites are generally found within parts of the Abla-Luhi (Mefe), Abla-Clun, Abla-Mefe, Abla-Gatr, and Abla-Caca habitat types. Moist types in the *Picea engelmannii* series provide similar habitats.

Moist sites have been identified as a very important component of elk summer range, especially when they occur within the *Abies lasiocarpa* climax series. These habitats are primarily important because of their high forage production, good nutritional quality, diverse species composition, and high cover values when interspersed with trees. Because the forage is utilized after calving and prior to the breeding season, it may be important in both reproduction and winter survival.

Selective withdrawal from treatment, along with protection of peripheral zones to provide continuous cover with the uncut forest, will benefit elk. New or planned roads passing near these sites should be closed to summer and fall vehicular traffic except perhaps for light, intermittent administrative use. Roads that already occur near moist areas should be closely evaluated for travel restrictions.

Moist sites are more critical during dry summers when precipitation from the previous winter and early spring (October through May) approaches 25 percent below normal. During such years, elk will benefit if land managers shift human activities and/or livestock grazing away from moist sites, particularly in areas with little moist summer range.

ELK AND CATTLE RELATIONSHIPS

Recommendation

The effect of every proposed timber sale on elk and livestock management objectives should be evaluated. Allocation of area may be more practical and ecologically sound than allocation of forage. Cattle use of newly logged areas which have been previously used exclusively by elk should be discouraged.

Findings and Discussion

The presence and distribution of domestic cattle substantially influenced the distribution of elk on the study area which had summer range cattle allotments. Systematic observation revealed a significant tendency for elk to avoid cattle. In any habitat, the probability of elk use concurrent with cattle use was about one-half the probability of elk use in the absence of cattle.

Road construction and other associated timber harvest activities occasionally "open up" new areas for grazing or alter existing cattle grazing allotments on elk summer ranges. Such activities increase the potential for elk and cattle interactions.

WINTER RANGES

Recommendation

Timbered areas adjacent to primary winter foraging areas should be managed to maintain the integrity of cover for elk. Where timber harvest is acceptable, slash cleanup and logging should be scheduled outside the winter period.

Findings and Discussion

Elk on winter range in western Montana preferred dense timber stands and larger trees for bedding cover. Bedding sites were usually in close proximity to a feeding area such as a south facing slope with a good stand of browse or perennial grasses. Timbered areas that received moderate to heavy elk bedding use prior to logging were not used for bedding during winters following heavy selection logging. Elimination of preferred bedding sites subjected elk to decreased energy intake and increased energy output because of increased travel between suitable bedding and feeding sites.

Winter range conditions vary greatly across Montana. To the east, elk forage on grasslands and seek cover in adjacent timber stands. Snow depths are usually low to moderate, and elk wintering in these areas may venture far from timber cover when undisturbed. When snow does get deep, elk will seek cover. Logging adjacent to grassland winter ranges will normally be detrimental to elk. Forage conditions on these ranges may be improved by range rehabilitation, grazing management, or prescribed fire.

West of the Continental Divide, on important and already well-used browse ranges, the probability of improvement by logging is minimal. Where winter range quality is declining or is already poor, especially on shrub ranges, several management options offer possibilities for enhancing winter range. The presence of larger trees in a dense multistory stand is desirable. Where winter ranges are heavily forested and forage conditions are poor, the timber overstory can be removed in small patches to enhance forage production on south to west facing slopes. The design and layout openings should be planned so that adjacent forest cover on benches and finger ridges will provide thermal cover and bedding sites. Slash cleanup and logging should be scheduled outside the winter period.

Because of the relative importance of productive elk winter range and the narrow margin for error, any contemplated modification of timber stands should be planned on a site-by-site basis, with primary emphasis on maintaining adequate cover adjacent to productive forage areas. It is unlikely that winter ranges ever meet the nutritional needs of elk completely, so some winter weight loss will always be experienced. Elk productivity and, under severe conditions, survival will decrease as weight loss increases. Thus, conservation of stored energy as well as energy intake, is important to wintering elk.

GLOSSARY

The glossary contains explanations of acronyms, abbreviations, and terms as they are used by the interdisciplinary team.

ACEC. Area of Critical Environmental Concern. An area within the public lands where special management attention is required to protect and prevent irreparable damage to important historic values, cultural values, scenic values, fish and wildlife resources, or other natural systems; or to protect life and safety from natural hazards.

ACTIVE PREFERENCE. Number of AUMs currently allowed in a grazing authorization.

ACTIVITY PLAN. A site-specific plan for the management of one or more resources (i.e., CMP, AMP). Activity plans implement decisions made in the Resource Management Plan.

AESTHETICS. Evaluations and considerations concerned with the sensory quality of resources (sight, sound, smell, taste, and touch) and especially with respect to judgment about their pleasurable qualities.

ALLOWABLE CUT. The amount of timber which can be harvested on an annual or decadal basis consistent with the principle of sustained yield. The allowable cut includes all planned timber harvest volumes exclusive of such products as Christmas trees, branches, and cones.

ALLUVIAL FAN. A cone shaped deposit of alluvium made by a stream where it runs out onto a level plain or meets a slower stream.

ALLUVIUM. A general term for all detrital deposits resulting from the modern rivers; including sediments laid down in river beds, flood plains, fans at the foot of mountain slopes, and estuaries. The term is intended to apply to stream deposits of comparatively recent time.

AMENITIES. Those resource values for which market values are not or can not be established.

AMP. Allotment Management Plan. A plan for livestock grazing management designed to attain specific goals for improving the range, watershed, soils, wildlife, and/or forest resources on a grazing allotment.

ASH CAP. A surface layer of soil made up of fine fragments of glass and volcanic debris.

AUM. Animal Unit Month. The amount of forage necessary for the complete sustenance of one cow, or its equivalent (one horse or five sheep, all over six months old) for one month; also, a unit of measurement of grazing privilege.

AVAILABLE COMMERCIAL FOREST LAND. That portion of the timber production base available or remaining after consideration of other resource values and resolution of identified conflicts in the RMP process, and after wilderness study areas are identified.

AVOIDANCE AREAS. Land areas generally unsuitable for inclusion in utility corridors because they pose particular land use or environmental impacts that would be difficult or impossible to mitigate. This may vary by type of facility.

BEST MANAGEMENT PRACTICES. See BMP.

BFPA. Blackfoot Forest Protection Association.

BIG GAME SPECIES. Those species of large mammals normally managed as a sport hunting resource.

BIOLOGICAL CONTROL. Control of pests by means of living organisms like predators, parasites, and disease producing organisms.

BLM. Bureau of Land Management.

BMP. Best Management Practices. These practices are listed in Appendix B.

BOARD FOOT. A unit of solid wood, one-foot square and one-inch thick.

BROWSE. As a verb, to consume or to feed on (a plant); as a noun, the tender shoots, twigs, and leaves of trees and shrubs, often used as food by cattle, deer, elk, and other animals.

BSMA. Blackfoot Special Management Area. A cooperatively managed road closure area east of the Lubrecht Experimental Forest in the Garnet Range.

BUFFER STRIP. Designated land along the perimeter of a special feature that is set up to resist, absorb, or otherwise protect the feature from the effects of other land uses.

C ALLOTMENTS. Grazing allotments that have been selected for custodial management. See Appendix H.

C&MU. Classification and Multiple Use Act. Under the Classification and Multiple Use Act of September 19, 1964, lands administered by the BLM were to be classified for retention or disposal. Publication of notice for proposed classification had the effect of segregating the lands from the mining and mineral leasing laws (Maley 1983).

CANOPY COVER. The percentage of ground covered when a polygon drawn around the extremities of the undisturbed canopy of each plant is projected on the ground and all such projections on a given area are added together.

CFL. Commercial Forest Land. Forest land that is now producing or is capable of producing at least 20 cubic feet per acre per year of commercial coniferous tree species.

CHECKERBOARD OWNERSHIP. A situation where areas of public lands alternate with lands in other ownership causing the land ownership pattern to resemble a checkerboard. The situation originated in western Montana in 1883 when Congress granted lands to the Northern Pacific company to encourage the building of a railroad from Lake Superior to Puget Sound. In order to offer financial incentives at no cost to the taxpayer, Congress granted alternate sections of lands along the route. The building of the railroad tended to double the value of the remaining public land. This land was then offered to homesteaders with total receipt to the government theoretically being the same as if all the land had been sold without the grant to the railroad. In practice, however, much of the public land was not suitable for homesteading and remained in public ownership.

CHERRYSTEMMED. The description of a long, narrow protrusion into the boundary of a wilderness study area.

CLEARCUT. An area where all trees are harvested both merchantable and unmerchantable.

CLEARCUT EQUIVALENCY. The number of acres of partial tree removal that equals one-acre of clearcut.

CLIMAX. The highest ecological development of a plant community capable of perpetuation under the prevailing climatic and soil conditions.

CMAI. Culmination of the Mean Annual Increment.

CMP. Compartment Management Plan. A compartment is a geographical area such as a drainage or road tributary area. The compartment management plan identifies, describes, and classifies the various stands in the CMP area. The plan also includes silvicultural prescriptions for each stand, priorities for treatment, and a transportation plan.

COMMERCIAL THINNING. Partial cuttings made in merchantable stands (40 to 70 years old) in order to stimulate the growth of remaining trees and increase total yield from the stand.

CONFINEMENT. An action that uses natural or preconstructed barriers or environmental conditions to confine a fire to a predetermined area.

CONTACT METAMORPHIC DEPOSIT. A deposit of mineral material formed when an igneous intrusion of magma interacts with the surrounding rock.

CORE AREA. The area addressed in the Garnet Resource Management Area. It includes Missoula, Granite, and Powell counties in Montana.

CONTROL. An immediate suppression action with enough forces to suppress a fire within the first burning period.

CRINOID DEBRIS. The remains of a type of echinoderm in fossil form.

CULTURAL RESOURCES. Any cultural property, including records and physical remains related to such property, and any traditional lifeway value.

DISPERSED RECREATION. A type of recreation that requires a variety of sites yet needs no special facilities.

EA. Environmental Assessment. A systematic environmental analysis of site-specific BLM activities used to determine whether such activities have a significant effect on the quality of the human environment and whether a formal environmental impact statement is required.

EARTHFLOW. A slow flow of earth lubricated with water.

EDGE EFFECT. Refers to the fact that wildlife populations are generally highest in the areas where a variety of habitats are available in a relatively small area. Also, refers to the ecotome created where plant communities of structural conditions within a community come together.

EIS. Environmental Impact Statement. A formal document to be filed with the Environmental Protection Agency that considers significant environmental impacts expected from implementation of a major federal action.

ENDANGERED SPECIES. Those species of plants or animals classified by the Secretary of the Interior or the Secretary of Commerce as endangered, pursuant to Section 4 of the Endangered Species Act. Means any species which is in danger of extinction throughout all or a significant portion of its range.

EPHEMERAL STREAM. A stream that flows only after rains or during snowmelt.

ERS. Economic Research Services, USDA.

FAF. Forage Acre Factor.

FAIR MARKET VALUE. Regarding the sale of BLM forest products, the dollar value that commercial operators are willing to bid on a competitive sale.

FAR. Forage Acre Requirement.

FORAGE. Vegetation of all forms available for animal consumption.

FORB. A broadleaved herb that is not a grass or grasslike.

FOREGROUND VIEWING AREA. A part of the scenic view where texture and form of individual items in the landscape are clearly seen.

FOREST CANOPY. The more or less continuous cover of branches and foliage formed collectively by the crowns of adjacent trees and other woody growth.

FS. Forest Service.

FWS. Fish and Wildlife Service.

GAME BIRD SPECIES. Those species of birds normally managed as a sport hunting resource.

GLACIAL TILL. Unstratified and unsorted sediment carried or deposited by a glacier.

GPA. Garnet Preservation Association. A nonprofit corporation set up to assist the BLM in management and preservation activities at Garnet Ghost Town.

GRA. Garnet Resource Area. The GRA is located in northwestern Montana and is part of the Butte District of the Bureau of Land Management.

GRANITIC INTRUSION. A geologic process whereby molten igneous rock of the granitic type is implaced into previously existing rocks. This process often alters the older rocks and may result in deposits of economic minerals.

HABITAT. A specific set of physical conditions that surround the single species, a group of species, or a large community. In wildlife management, the major elements of habitat are considered to be food, water, cover, and living space.

HABITAT TYPE. An aggregation of all land areas potentially capable of producing similar plant communities at climax.

HIGH VALUE RECREATION SITE. A site relatively undisturbed by other activities such as timber harvest, utility and transportation corridors, or livestock grazing in which vegetation is in a relatively natural condition.

HMP. Habitat Management Plan.

HOODOOS. Pillars developed by erosion of horizontal strata of varying hardness.

I ALLOTMENTS. Grazing allotments that have been selected for improvement. See Appendix H.

IETIC. Inland Empire Tree Improvement Cooperative.

IGNEOUS. Formed by solidification from a molten or partially molten state.

IMMEDIATE IMPACTS. Impacts that are predicted to occur while a management project is being initiated.

IMP. Interim Management Plan.

INTENSIVE TIMBER MANAGEMENT PRACTICES. These practices, used in the timber management plan for the MSYU, include tree improvement, site preparation, planting, precommercial thinning, and commercial thinning. These practices are aimed at reestablishing trees on forest land following harvest or natural catastrophe (fire) and promoting satisfactory or optimum growth of these forests.

INTRUSIVE. Having, while fluid, penetrated into or between other rocks, but solidifying before reaching the surface.

INVERTEBRATE. An animal without a backbone. This group includes such animals as insects, clams, snails, and worms.

ISA. Instant Study Area.

KEY ELK SUMMER AND FALL HABITAT. An area of summer and fall elk habitat containing a high density of big game habitat components.

LANDING. Any place on or adjacent to the logging site where logs are assembled for further transport.

LOCATABLE MINERALS. Minerals or materials subject to disposal and development through the Mining Law of 1872 (as amended). Generally includes metallic minerals such as gold and silver and other materials not subject to lease or sale (some bentonites, limestone, talc, some zeolites, etc.).

LODE. A tabular shaped deposit of valuable mineral between definite boundaries; a lode may also include several veins spaced closely together so that they may be mined as a unit. A mineral deposit in solid rock.

LONG-TERM IMPACTS. Impacts that are predicted to occur up to 20 years after the management project is initiated.

LTE. Long-term Estimate. (See Appendix I.)

M ALLOTMENTS. Grazing allotments that have been selected for maintenance management. See Appendix H.

MA. Management Areas.

MACHINE SCARIFICATION. A mechanical technique to prepare land for reforestation.

MANAGEMENT AREA PRESCRIPTIONS. A list of the goals and guidelines for managing units of public land with similar resource potentials and limitations. The management area prescriptions are based on resource capabilities, public issues, legal requirements, and policy considerations.

MANAGEMENT AREAS. Units of public land with similar resource potentials and limitations that are designated for management under a common set of management goals and guidelines. Management area boundaries do not always follow easily located topographic features or legal subdivisions. The boundaries are flexible to assure proper management of resources identified through additional on-the-ground reconnaissance and project planning.

MBF. Thousand Board Feet. A measure of timber volume.

MDFWP. Montana Department of Fish, Wildlife, and Parks.

MESIC AREA. A habitat having a moderate amount of moisture available for the support of plant life.

MFP. Management Framework Plan. Land use plan for public lands that provides a set of goals, objectives, and constraints for a specific planning area to guide the development of detailed plans for the management of each resource.

MINE TAILINGS. Materials that have been processed to remove a mineral or ore.

MINERAL LICK. A natural or artificial site used by big game species as a source of unbound nutrients or minerals.

MINERAL MATERIAL. Widespread deposits of common clay, sand, gravel, or stone which are not subject to disposal under the 1872 Mining Law (as amended).

MMBF. Million Board Feet. A measure of timber volume.

MOTORIZED VEHICLE USE. The use of all motorized vehicles including highway and off-road vehicles.

MSA. Management Situation Analysis. A document that assesses the current situation in a resource area. It includes current management guidance, a discussion of existing problems and opportunities for solving them, and a consolidation of data that is needed to analyze and resolve issues.

MSYU. Missoula Sustained Yield Unit.

NEPA. National Environmental Policy Act.

NONCOMMERCIAL FOREST. Land that is not able to yield at least 20 cubic feet of wood per acre per year of commercial species, or land that is capable of producing only noncommercial tree species.

NONFOREST HABITAT. Areas within a forest that are not capable of maintaining a crown cover of at least ten percent of forest trees. Examples are rock outcrops, roads, and urban areas.

NONGAME SPECIES. Any member of the animal kingdom from large animals through invertebrates which are not considered a game species.

NONPROBLEM FOREST LANDS. Forest lands that contain sites where regeneration can be expected within 15 years (see Appendix C).

NONRESTRICTED COMMERCIAL FOREST LANDS. All land in the timber production base that remains after withdrawn and restricted acreages are determined.

NONUSE. Current authorized grazing use (in AUMs) that is not used during a given time period. Nonuse is applied for and authorized on an annual basis.

NO SURFACE OCCUPANCY. The surface resources of a lease may not be disturbed by oil and gas development. However, oil and gas may be developed by directional drilling.

NOTICE. (Required for Disturbance of Five Acres or Less) Operators on project areas whose operations, including access across federal lands, cause a cumulative surface disturbance of five acres or less during any calendar year must file a notice with the Bureau of Land Management. 43 CFR 3809.1-3. A project area is defined in 43 CFR 3809.0-5(i) as a single tract of land upon which an operator is, or will be, conducting operations. It may include more than one mining claim under one ownership as well as federal lands on which an operator is exploring or prospecting prior to locating a mining claim. Before an operator may conduct additional operations under another notice, all lands disturbed under a previous notice must be reclaimed. Reclamation is defined in 43 CFR 3809.5(j) as taking such reasonable measures as will prevent unnecessary or undue degradation of the federal lands, including reshaping land disturbed by operations to an appropriate contour. Revegetation of disturbed areas may be necessary so as to provide a diverse vegetative cover (see Appendix D)(Maley 1983).

NPS. National Park Service.

NWPS. National Wilderness Preservation System.

OLD-GROWTH. A stand of trees that are generally 120 plus years old and showing decadence; the last stage in forest succession. The stand may contain large snags, numerous downed logs, a multilayered canopy of several species, and small openings.

OPEN FORAGE. The herbaceous and woody vegetation available to ungulates in stands not meeting thermal or security cover criteria. Most often the resultant forage from clearcut, seed tree, or overstory removal stand treatment.

OPTIMUM AQUATIC HABITAT. Based on stream habitat analysis, (Duff and Cooper 1978), these streams rated 70 percent or better in meeting optimum aquatic habitat requirements.

ORV. Off-road Vehicle. Any motorized vehicle designed for or capable of cross-country travel on or immediately over land, water, sand, snow, ice, marsh, swampland, or other natural terrain; except that such term excludes any registered motorboat; any fire, military, emergency, or law enforcement vehicle when used for emergency purposes; and any vehicle whose use is expressly authorized by the respective agency head under a permit, lease, license, or contract.

OVERTHRUST BELT. A geologic structure extending from southern Canada to Utah along the Continental Divide. The structure contains oil and gas reserves.

PARENT MATERIAL. The type of rock that has formed a given soil.

PHYSIOGRAPHIC PROVINCE. A region of similar structure and climate that has had a unified geomorphic history.

PINNACLE. Any high tower or spire-shaped pillar of rock, alone or cresting a summit. A tall, slender, pointed mass.

PILT. Payment in Lieu of Taxes.

PLACER MINING. Mining an alluvial or glacial deposit such as sand or gravel that contains particles of gold or other valuable minerals. The mineral is separated from the nonmineral substances by washing.

PLAN OF OPERATIONS. (Required for Disturbance of More Than Five Acres or Mining in Special Areas) A plan of operation must be submitted to the BLM if surface disturbance exceeds five acres for a single calendar year, or if the operations are proposed in the California Desert Conservation Area; areas designated for potential addition to, or an actual component of the National Wild and Scenic Rivers System; designated Areas of Critical Environmental Concern; areas designated as part of the National Wilderness Preservation System which are administered by the BLM; areas withdrawn from operation of the mining laws in which valid existing rights are being exercised; and areas designated as closed or limited to off-road vehicle use. 43 CFR 3809.1-4 (see Appendix D)(Maley 1983).

PLANNING CRITERIA. The factors used to guide development of the resource management plan, or revision, to ensure that it is tailored to the issue previously identified and to ensure that unnecessary data collection and analysis are avoided. Planning criteria are developed to guide the collection and use of inventory data and information, the analysis of the management situation, the design and formulation of alternatives, the estimation of the effects of alternatives, the evaluation of alternatives, and the selection of the preferred alternative.

PLANNING QUESTIONS. Questions to be addressed and analyzed by each of the plan alternatives. The questions were derived from the scoping process and the issues that were identified.

PRESCRIBED FIRE. The use of fire, under approved weather and fuel condition parameters, for vegetative manipulation and reduction of timber sale residue.

PRIMITIVE AND UNCONFINED TYPES OF RECREATION. Nonmotorized and nondeveloped types of outdoor recreational activities.

PROGENY SITE. A test area for evaluating parent seed trees by comparing the performance of their offspring seedlings.

PUBLIC LANDS. Federal lands managed by the Bureau of Land Management.

R&PP. Recreation and Public Purposes Act.

RAPTORS. A functional group of birds including all birds of prey such as eagles, hawks, owls, and vultures.

RECONNAISSANCE GEOLOGY SURVEY. A geologic survey that compiles and checks existing information. The survey done for the GRA placed the geologic information onto 7½ minute topographic maps.

RECREATION MANAGEMENT AREAS. Subunits of resource areas that serve as basic land units for recreation management. Each area is identified and managed as a unit based on similar or interdependent recreation values, homogeneous or interrelated recreation use, land tenure and use patterns, or administrative efficiency.

RED SLASH. Timber debris that has been recently cut and still has the needles on the limbs.

REFORESTATION. Reestablishment of a tree crop on forest land.

REGENERATION. The renewal of a commercial tree crop, whether by natural or artificial means; also, the young crop itself.

REGENERATION PERIOD. The time it takes for a new commercial timber stand to become stocked following the date of a timber sale.

RELICT. As related to climax, fragments of currently existing flora in areas with a historical record of no disturbance and with the plant community assumed to be in near virgin condition.

REPLACEMENT DEPOSITS. A vein in which certain minerals have passed into solution and have been carried away, while other minerals from the solution have been deposited in place of those removed. A mineral deposit formed by replacement of previous rock. Generally, a volume for volume process.

RESTRICTED COMMERCIAL FOREST LAND. Problem sites in the timber production base on which special techniques are required to protect the timber growing potential of the site or to insure adequate reforestation within specified time limits (see Appendix C).

RIPARIAN. An area identified by the presence of vegetation that requires free or unbound water or conditions more moist than normally found in the area.

RIPRAP. Broken rock used for revetment, the protection for bluffs or structures exposed to wave action, foundations, etc.

RMP. Resource Management Plan. The system that provides a step-by-step process for considering multiple resource values, resolving conflicts, and making resource management decisions.

RMP PROCESS. A process to weigh the effects of applying various mixes of management area prescriptions to the public lands of the resource area. Through alternative formulation and impact analysis, management area prescriptions are chosen that recognize the resource potentials and limitations of the public land and best achieve the principles of multiple use management and sustained yield.

SALABLES. Minerals, such as common varieties of sand, stone, gravel, cinders, pumice, pumicite, and clay that may be acquired under the Materials Act of 1947, as amended (Maley 1983).

SALVAGE CUTTING. The cutting of trees that are dead, dying, or deteriorating before their timber becomes worthless.

SANITATION CUTTING. Removal of individual trees killed or injured by fire, insects, disease, etc.

SATISFACTORY RIPARIAN. Satisfactory riparian is characterized by good vigor and canopy cover, abundant production of palatable plant species, and well developed, overhanging streambanks (see Figure 3-2).

SATISFACTORY WINTER RANGE. Big game wintering areas having preferred forage plants available in sufficient quantities and located in proximity to thermal and security cover.

SCENIC QUALITY. The overall impression retained by an observer after walking over, driving through, or flying over an area of land.

SEASONAL RESTRICTION. A restriction placed on the development activities of an oil and gas lease. The restriction is applied to protect a surface resource during a time when the oil and gas activity would adversely affect it.

SECURITY COVER. Vegetation capable of hiding 90 percent of a standing adult elk from human view at less than 200 feet distance. Generally, a minimum of 200 trees per acre 8 feet tall meets security requirements on forest regeneration units.

SEED TREE CUTTING. Timber harvest that removes most mature trees in one cut leaving a small number of seed bearing trees.

SEISMIC EXPLORATION. A method of oil and gas exploration that uses sound vibrations to map underground strata.

SELECTION CUTTING. Timber harvest that removes mature trees at 5 to 20-year intervals. This method achieves an uneven-age timber stand.

SET ASIDES. Popular term used to describe all withdrawn or restricted commercial forest lands, as determined by timber production capability classification, resource management planning, or wilderness review processes.

SHELTERWOOD CUTTING. A series of partial cuttings designed to establish a new crop of trees under the protection of the old.

SHORT-TERM IMPACTS. Impacts that are predicted to occur after the management project is initiated and over a duration up to ten years.

SHRUB. A low woody plant, usually with several stems; may provide food and/or cover for animals.

SITE INDEX. A measure of site quality based on the height of a tree at a given age. Age varies with the species of tree and region. For example, if the site index is 35 on a 50 year base, a tree is 35 feet tall at 50 years of age.

SITE PREPARATION. Any action taken in conjunction with a reforestation effort (natural or artificial) to create an environment that is favorable for survival of suitable trees during the first growing season. This environment can be created by altering ground cover, soil, or microsite conditions; using biological, mechanical, or manual clearing; using prescribed burning or herbicides; or using a combination of methods.

SKIDDING EQUIPMENT. Equipment used to transport logs by sliding or dragging along the ground.

SLASH. The branches, bark, tops, cull logs, and broken or uprooted trees left on the ground after logging has been completed.

SLUMP. Material that has slid downward and outward as a mass, usually with backward rotation of the unit or several subsidiary units.

SMSA. Standard Metropolitan Statistical Area. As defined by the Bureau of the Census in 1960, a county or group of contiguous counties that contains at least one city of 50,000 inhabitants or more (or twin cities with a combined population of at least 50,000); also, contiguous counties essentially metropolitan in character and socially and economically integrated with the central city.

SOP. Standard Operating Procedures. These procedures are identified in Chapter 2 in the section entitled Management Guidance Common to All Alternatives.

SPECIAL RECREATION MANAGEMENT AREAS. Areas where special or more intensive types of recreation management are needed. Recreation Activity Plans are required and greater managerial investments (e.g., facilities, supervision, etc.) can be anticipated. Area size is typically over 1,000 acres, although exceptions do occur (e.g., large campground units, trail segments, historical sites, etc.)

SPECIAL STIPULATIONS. See Appendix E.

SRMA. Special Recreation Management Area.

STANDARD OPERATING PROCEDURES. See SOP.

SPECIES OF SPECIAL INTEREST OR CONCERN. Animals not yet listed as endangered or threatened, but which are undergoing status review. This may include animals whose populations are consistently and widely dispersed or whose ranges are restricted to a few localities, so that any major habitat change could lead to extinction. A species that is particularly sensitive to some external disturbance factors.

STANDARD STIPULATIONS. See Appendix E.

STOCKING RATE. An expression of the number of animals and the grazing period allotted to a specific area. It is usually expressed as a ratio, such as acres/AUM.

STT. Short-term Targets (see Appendix I).

SUBOPTIMUM AQUATIC HABITAT. Based on stream habitat analysis, (Duff and Cooper 1978), these streams rated less than 70 percent in meeting optimum aquatic habitat requirements.

SUBSIDENCE. A sinking of a large part of the earth's crust.

SUCCESSIONAL STAGES (forested types). Phases of gradual supplanting of one community of plants by another, or progressive change in a timber stand toward maturity.

SUSTAINED YIELD TIMBER PRODUCTION BASE. The amount of timber in the Garnet Resource Area that is managed to achieve and maintain in perpetuity a high level annual or regular periodic output of timber.

T&E. Threatened and endangered species of plants and animals.

TACK-ON. A parcel of public land that is less than 5,000 acres in size, possesses the wilderness characteristics of naturalness and outstanding opportunities for solitude or primitive recreation, and is adjacent to other federal land that has been designated as wilderness or is being studied for wilderness designation.

TEMPORARY NONRENEWABLE USE. Livestock use that has been applied for and authorized to increase the number of AUMs on an allotment on a temporary basis.

THERMAL COVER. Vegetation or topography that prevents radiational heat loss, reduces wind chill during cold weather, and intercepts solar radiation during warm weather. Generally, a minimum thermal stand consists of tree heights averaging 40 feet or greater and crown closure of 70 percent or greater.

THREATENED SPECIES. Those species of plant or animals classified by the Secretary of the Interior or the Secretary of Commerce as threatened, pursuant to Section 4 of the Endangered Species Act. Means any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range.

TIMBERED FORAGE. The herbaceous and woody vegetation available to ungulates in stands not usually meeting thermal or security cover criteria. Most often the resultant forage from intermediate stand treatment.

TIMBER PRODUCTION BASE. Acres included in the calculation of the allowable cut.

TPCC. Timber Production Capability Classification. A classification system that identifies the commercial forest land base capable of producing timber on a sustained yield basis (see Appendix C).

TRANSITORY RANGE. Range that is created by timber harvest. The range is transitory because the regeneration of the timber stand will reduce the livestock forage production.

UNSATISFACTORY RIPARIAN. Unsatisfactory riparian habitat is characterized by poor vigor and canopy cover, low species diversity, and a lack of reproduction of woody plant species. Unpalatable plants such as sagebrush and iris are increasing in abundance (Figure 3-3).

UNSATISFACTORY WINTER RANGE. Big game wintering areas in which preferred forage plants are either not available in sufficient quantities, or the forage is not located in proximity to thermal and security cover.

UTILITY CORRIDOR. Lands that have existing rights-of-way for utility lines such as electric transmission lines, pipelines, telephone lines, etc.

UTILIZATION. The proportion of current year's forage production that is consumed or destroyed by grazing animals, usually expressed as percentage.

VEGETATIVE CONDITION. See Appendix L.

VEIN DEPOSIT. A fissure, fault, or crack in a rock filled by minerals that have traveled upwards from a deep source. A zone or belt of mineralized rock lying within boundaries clearly separating it from neighboring rock.

VRM. Visual Resource Management.

WALLOW. A depression, pool of water, or wet area used by elk during the breeding season.

WILDLIFE GOALS. Wildlife goals are statements of management emphasis either contained in the Management Area Prescriptions section of the RMP (Appendix A) or as stated in activity plans. An example of a goal is "Provide elements of old-growth or mature forest for wildlife habitat in the immediate vicinity of big game summer habitat components."

WINDOWS. Usually short, narrow passageways through constrained areas that are the most feasible potential locations for linear utility facilities, considering engineering and environmental factors.

WINTER RANGE. Area occupied by animals during the winter months.

WITHDRAWN FOREST LANDS. Forest lands that contain sites that are too fragile to log (see Appendix C).

WOOD PRODUCTS. Firewood, post and poles, boughs, sawlogs, wildings, Christmas trees, house logs, etc. that can be harvested from noncommercial forest lands.

WSA. Wilderness Study Area. A parcel of public land that through the BLM's wilderness inventory process has been found to possess the basic wilderness characteristics of being at least 5,000 acres in size, being primarily natural, and having outstanding opportunities for solitude or primitive and unconfined types of recreation.

WSB. Western Spruce Budworm. A common forest insect that causes damage to the foliage and cones of the Douglas-fir.

WSR. Wilderness Study Report.

YARDING. The process of conveying logs to a landing.

202 WSA. Same as a WSA except that it is less than 5,000 acres in size. It is studied under Section 202 of FLPMA.

REFERENCES

Berwick, Stephen H. 1968. "Observations of the Decline of the Rock Creek, Montana, Population of Bighorn Sheep." Masters Thesis. University of Montana. Missoula, MT

Cole, David N. and Randel F. Washburne. 1980. "Problems and Practices in Wilderness Management." Review draft of report. n.p.

Cooperrider, Allen Y. 1969. "The Biology and Management of the Bighorn Sheep of Rock Creek, Montana." Masters Thesis. University of Montana. Missoula, MT.

Davis, George D. 1980. "The Case for Wilderness Diversity." *American Forests.* August 1980. p. 24.

Duff, D. A. and J. L. Cooper. 1978. *Techniques for Conducting Stream Habitat Surveys on National Resource Land.* USDI, BLM Technical Note No. 283. Federal Center Building 50, Denver CO.

Fenneman, Nevin. 1938. *Physiography of Western United States.* New York: McGraw-Hill.

French, Roxa and John Lacey. 1983. *Knapweed: Its Cause, Effect and Spread in Montana.* Montana Cooperative Extension Service, Montana State University. Bozeman, MT.

Geo/Resource Consultants, Inc. 1983. *Geologic Survey of the Hoodoo and Philipsburg Planning Units, Granite and Powell Counties, Montana.* n.p.

Haug, P. T., R. W. Burwell, A. Stein, and B. L. Bandurski. 1984a. "Determining Significance of Environmental Issues Under NEPA." *Journal of Environmental Management.* Vol. 18. p. 15-24.

Haug, P. T., R. W. Burwell, G. Yeager, A. Stein, and B. L. Bandurski. 1984b. "A Systematic Interdisciplinary Language For Environmental Analysis Under NEPA." *Journal of Environmental Management.* Vol. 18. p. 1-13.

Hormay, August L. 1970. *Principles of Rest-Rotation Grazing and Multiple-Use Land Management.* Washington: Government Printing Office. A joint publication of the U.S. Department of the Interior, Bureau of Land Management and U.S. Department of Agriculture, Forest Service.

Johnsgard, Paul A. 1973. *Grouse and Quails of North America.* University of Nebraska Press. Lincoln, NB.

Kuchler, A. W. 1964. *Potential Natural Vegetation of the Conterminous United States.* American Geographical Society Special Publication No. 36.

Maley, Terry S. 1983. *Handbook of Mineral Law.* Third Edition. Mineral Land Publication. Boise, ID.

Montana Fish and Game Commission. 1975. *Montana Historic Preservation Plan.* Second Edition. Helena, MT.

Montana Department of Fish, Wildlife, and Parks. 1983. *Montana Statewide Comprehensive Outdoor Recreation Plan (SCORP).* Helena, MT.

Morrison-Maierle. Inc. 1978. *General Geologic Report, Blackfoot Planning Unit.* n.p.

Power, T. M. 1980. *The Economic Value of the Quality of Life.* Westview Press. Boulder, Colorado.

Ratliff, Raymond D. and Jack N. Reppert. 1974. "Vigor of Idaho Fescue Grazed Under Rest-Rotation and Continuous Grazing." *Journal of Range Management.* 27(6):447-459.

Society for Range Management, Range Term Glossary Committee. 1974. *A Glossary of Terms Used in Range Management.* 2nd Ed. Denver: Society of Range Management.

Spencer, Edward, Herbert E. Eichelberger, Raymond E. Leonard, and Craig Evans. 1980. "Trends in Hiking and Backcountry Use." *In Proceedings: 1980 National Outdoor Recreation Trends Symposium.* General Technical Report NE-57. Broomall, PA: USDA, Forest Service, Northeast Forest Experiment Station.

Stankey, George H. 1971. *The Perceptions of Wilderness Carrying Capacity.* East Lansing, MI. Michigan State University.

Thomas, Jack W. and D. E. Toweill. 1982. *Elk of North America, Ecology and Management.* Wildlife Management Institute Book. Stackpole Books. Harrisburg, PA.

USDA. Forest Service. 1965a. *Rotation, Rest-Rotation, and Season Long Grazing on a Mountain Range in Wyoming.* by W. M. Johnson. Forest Service Research Paper RM-14.

USDA. Forest Service. 1965b. *Vegetation Manipulation Guidelines.* D. J. Pfankuch. Lolo National Forest. Missoula, MT.

USDA. Forest Service. 1972. *Rest-Rotation Grazing at Harvey Valley: Range, Health, Cattle Gains, Costs.* by Raymond D. Ratliff, Jack N. Reppert, and Richard J. McConnen. Forest Service Research Paper PSW-77.

USDA. Forest Service. 1975. *Stream Reach Inventory and Channel Stability Evaluation.* D. J. Pfankuch. Lolo National Forest. Missoula, MT.

USDA. Forest Service. 1976. *Ecoregions of the United States.* by Robert G. Bailey (Map). Ogden, UT.

USDA. Forest Service. 1977. *Forest Habitat Types of Montana.* Robert Pfister, Bernard Kovalchik, Stephen Arno, and Richard Presby. General Technical Report INT-34. Ogden, UT: Intermountain Forest and Range Experiment Station.

USDA. Forest Service. 1978a. *Description of the Ecoregions of the United States.* compiled by Robert G. Bailey. Ogden, UT.

USDA. Forest Service. 1978b. *Draft Environmental Statement Roadless Area Review and Evaluation.* Washington, D.C.

USDA. Forest Service. 1980. *Environmental Consequences of Timber Harvesting in the Rocky Mountain Coniferous Forest.* General Technical Report INT-90. Intermountain Forest and Range Experimental Station. Missoula, MT.

USDA. Forest Service. 1982a. *Montana Cooperative Elk Logging Study.* Annual Program Report. A joint publication of the USDI, Bureau of Land Management; USDA, Forest Service; Montana Department of Fish, Wildlife, and Parks; and the School of Forestry, University of Montana.

USDA. Forest Service. 1982b. *The Proposed Lolo National Forest Plan.* Lolo National Forest. Missoula, MT.

USDA. Soil Conservation Service. 1975. *Soil Survey Handbook.* Fifth Draft. Washington, D.C.

USDA. Soil Conservation Service. 1976. *National Range Handbook.* Washington, D.C.

USDA. Soil Conservation Service. 1977. *Montana Grazing Guides.* Bozeman, MT.

USDA. Soil Conservation Service. 1983. "National Range Handbook Amendment MT 1."

USDI. Bureau of Land Management. 1976. *Environmental Analysis for Timber Management Plan.* Missoula Sustained Yield Unit. Missoula, MT.

USDI. Bureau of Land Management. 1978. *Wilderness Inventory Handbook: Policy, Direction, Procedures, and Guidance for Conducting Wilderness Inventory on the Public Lands.* Washington, D.C.

USDI. Bureau of Land Management. 1979. *Summary of Final EIS on the Crude Oil Transportation System.* Portland, OR.

USDI. Bureau of Land Management. 1980. *Water Quality Management of the Public Lands.* Billings, MT.

USDI. Bureau of Land Management. 1981a. *Oil and Gas Environmental Assessment of BLM Leasing Program.* Butte, MT.

USDI. Bureau of Land Management. 1981b. *Wilderness Management Policy.* Washington, D.C.

USDI. Bureau of Land Management. 1983a. *Interim Management Policy and Guidance for Lands Under Wilderness Review.* Washington, D.C.

USDI. Bureau of Land Management. 1983b. *State Director Guidance for Resource Management Planning in Montana and the Dakotas.* Billings, MT.

USDI. Bureau of Land Management. 1984. *Land Pattern Review and Land Adjustment Supplement to the State Director Guidance for Resource Management Planning in Montana and the Dakotas.* Billings, MT.

U.S. President. Executive Order 11644. "Use of Off-road Vehicles on Public Lands." *Federal Register.* 37, No. 2877. February 9, 1977.

U.S. President. Executive Order 11989. "Off-road Vehicles on Public Lands." *Federal Register.* 42, No. 26959h. May 25, 1977.

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ERRATA

The following changes should be made in the text of the Garnet Draft RMP/EIS.

CHAPTER 2

Alternatives Considered In Detail, Pages 26, 33, 34, 40 and 42.

The last sentence in the first paragraph under Special Attention Resources should read:

WSA boundaries and alternative wilderness recommendations are displayed on the individual WSA **Alternatives** maps.

Alternatives Considered In Detail, Pages 30 and 39.

All maps of the Gallagher Creek WSA incorrectly portray foot trails as vehicle roads or ways.

Alternatives Considered In Detail, Pages 27, 35 and 40.

The third sentence in the first paragraph under Recreation, Cultural and Aesthetic Resources should read:

About 9,440 acres in the Ram Mountain, Chamberlain Creek **and Karshaw Mountain** areas are roaded, but would not be available for motorized recreation.

Selection of the Preferred Alternative, Page 59.

The last sentence in the first paragraph under Recreation, Cultural and Aesthetic Resources (Management Direction) should read:

Quigg West, the Limestone Cliffs, **Ram Mountain and Karshaw Mountain** would be closed to motorized vehicle use.

The fourth sentence in the first paragraph under Recreation, Cultural and Aesthetic Resources (Rationale) should read:

Quigg West, the Limestone Cliffs, **Ram Mountain and Karshaw Mountain** will be closed to vehicle access to protect unique resource values.

CHAPTER 3

Wilderness Resources, Page 88.

The map of the Gallagher Creek WSA incorrectly portrays foot trails as vehicle roads or ways.

Range Resources, Page 93.

The fourth sentence in the first paragraph under Livestock Grazing should read:

Most allotments are cow/calf operations.

APPENDIX O

The Quigg (Slide Rock) RARE II wilderness study area is variously identified by the following numbers: 1807, Q1-807, Q1807 and FS 1807. The correct identification number is **1807**.

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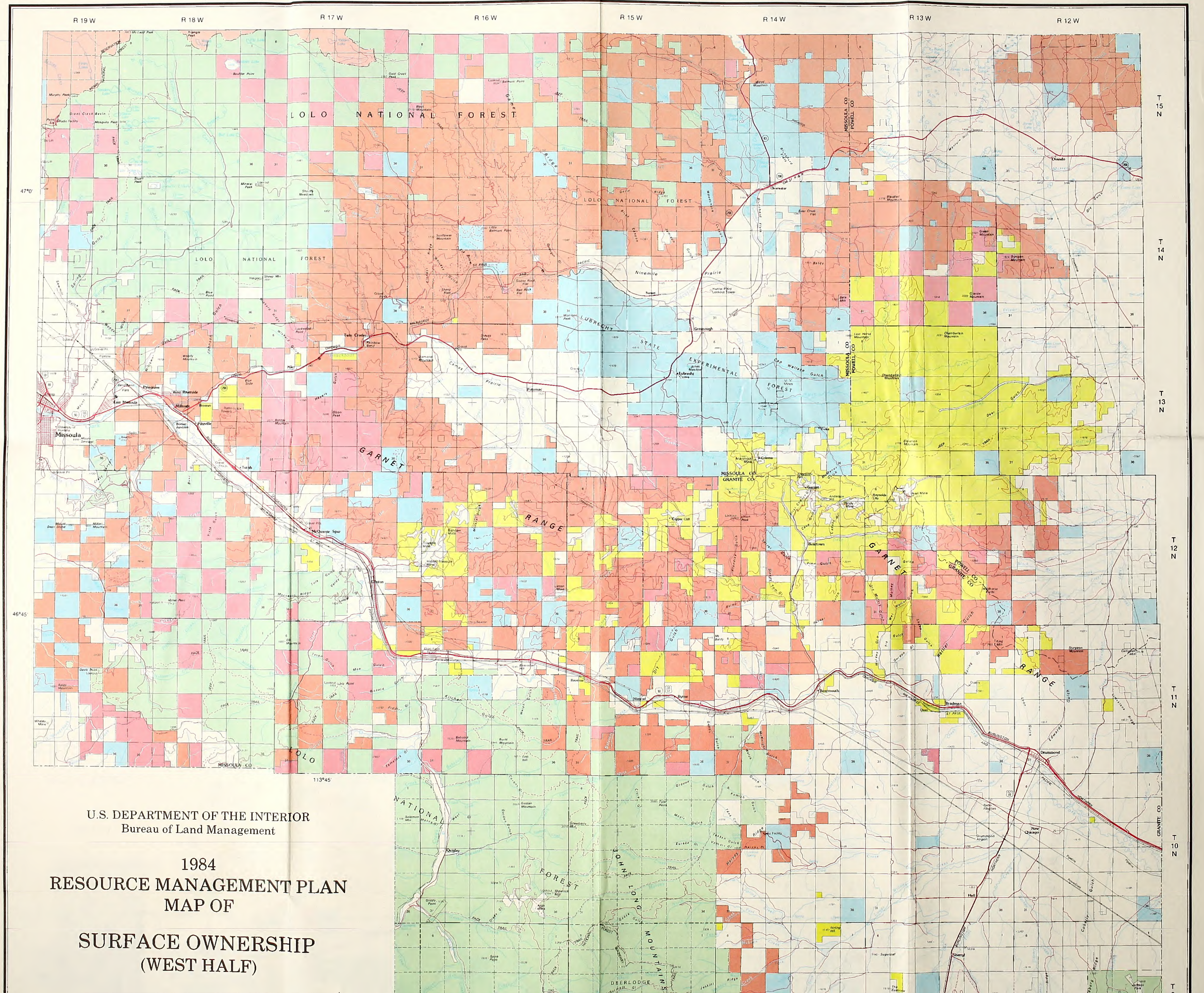


U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN MAP OF
SURFACE OWNERSHIP
(WEST HALF)

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN MAP OF

SURFACE OWNERSHIP
(WEST HALF)

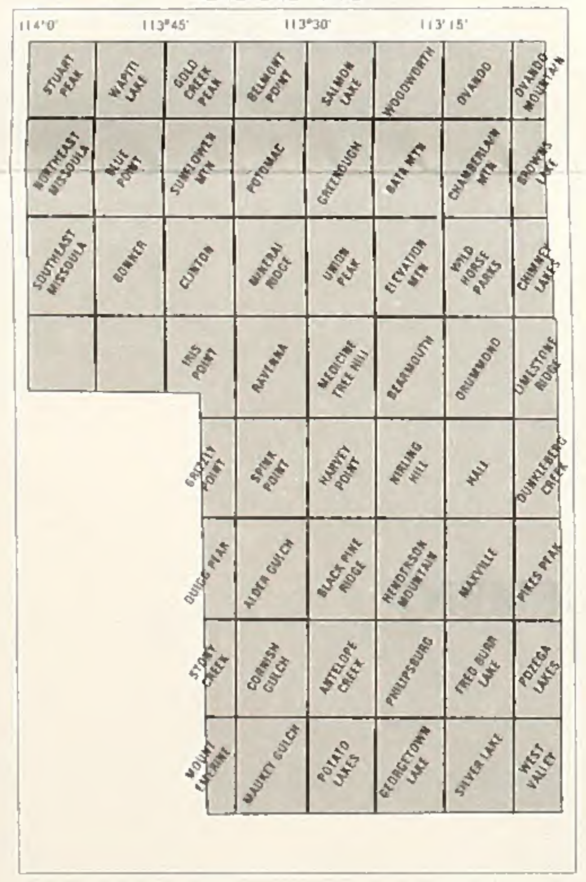
Garnet Resource Area
Butte District
Montana

-N-

LOCATION MAP

INDEX MAPS

USGS 7½'



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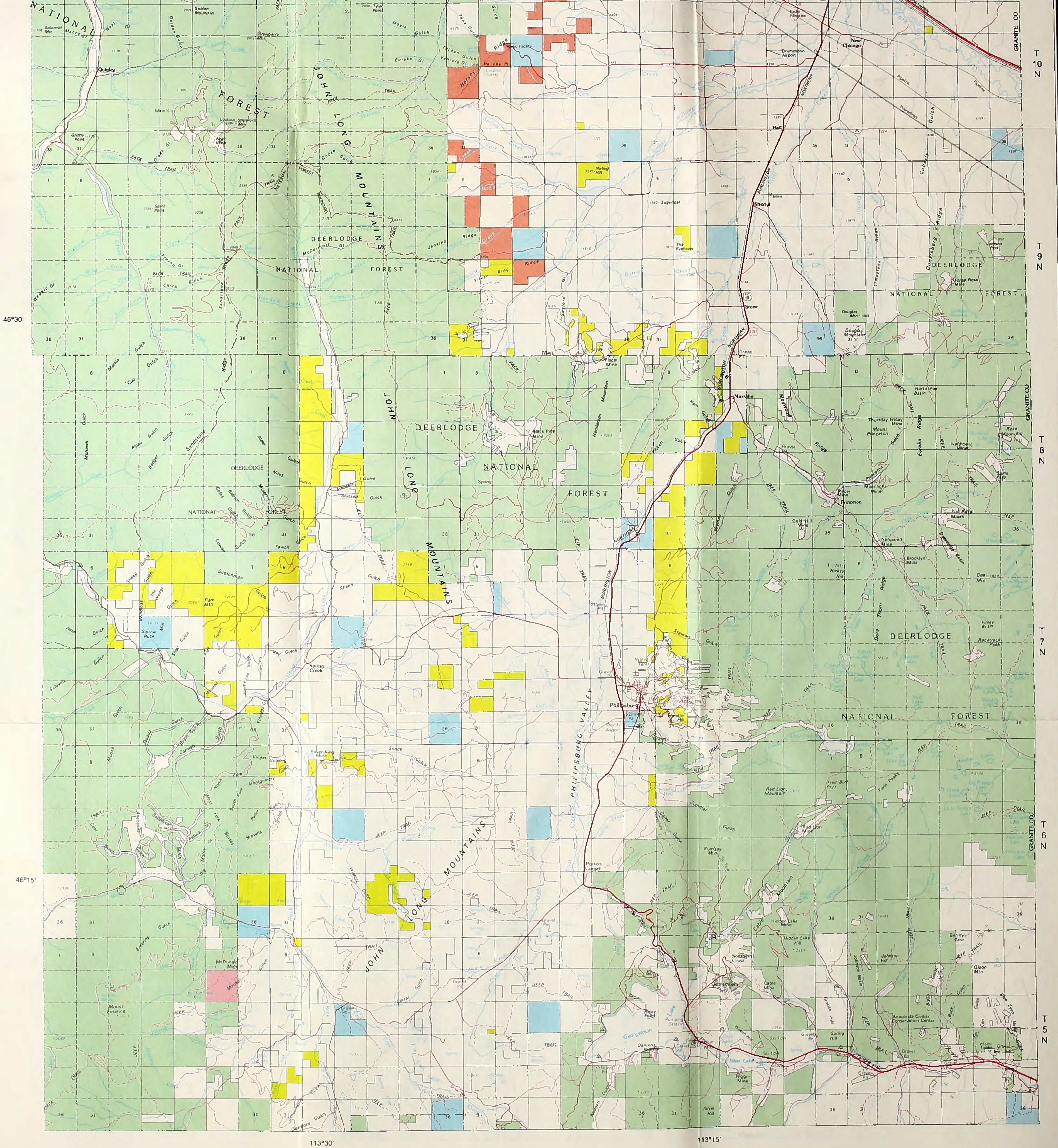
LEGEND

🟨 BUREAU OF LAND MANAGEMENT
🟩 FOREST SERVICE
🟦 STATE
🟪 PLUM CREEK TIMBER CO.
🟧 CHAMPION INTERNATIONAL CORP.
🟥 INDIAN RESERVATION
⬜ OTHER



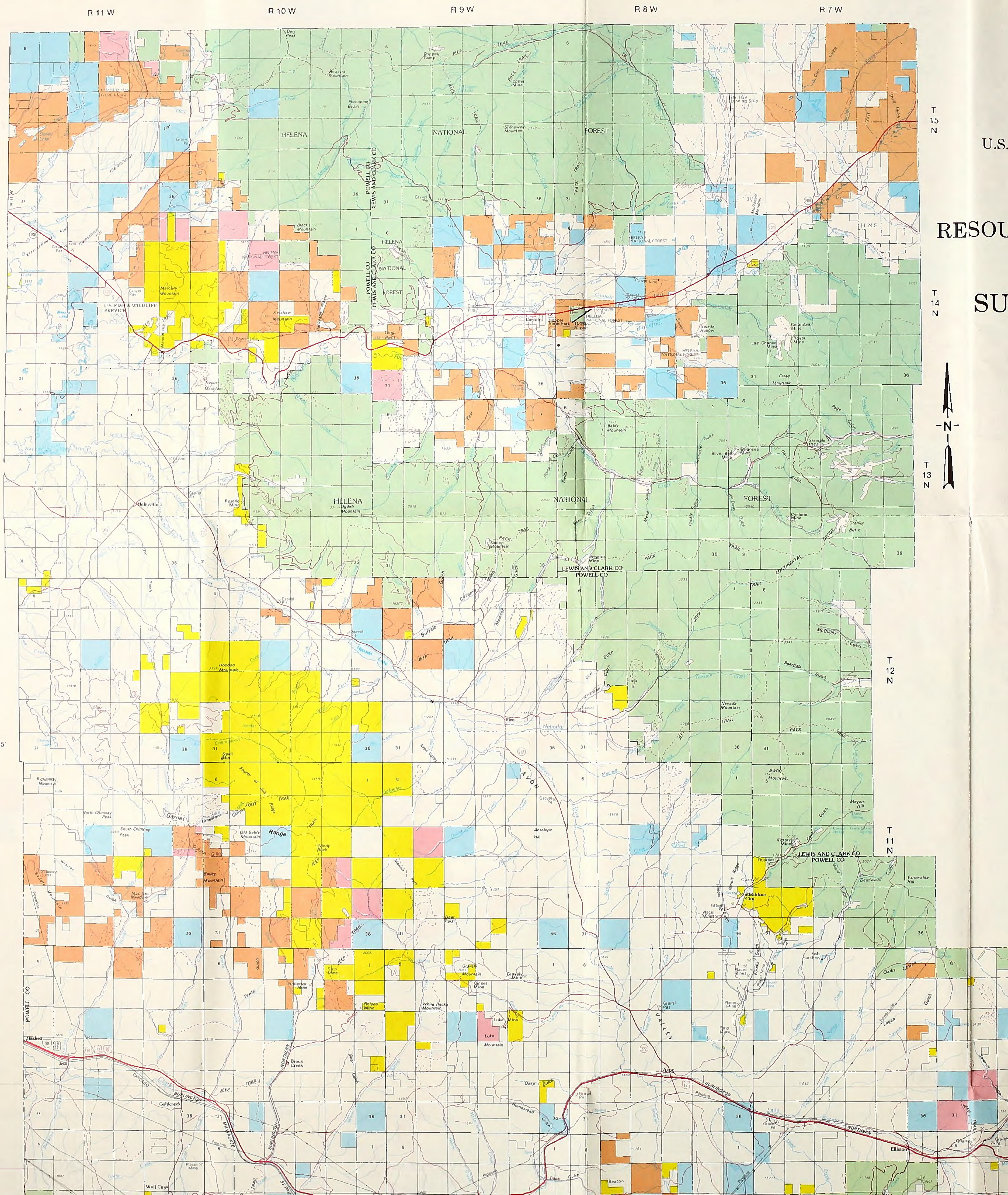
Due to scale of map, parcels of BLM lands containing 10 acres or less may not be shown.

This is a graphic representation only. For detailed information, contact the BLM Resource Area Office in Missoula, Montana.

SCALE
1:126,720 ½" = 1 mile

W½ LAND STATUS MAP (Front)

E½ LAND STATUS MAP (Back)



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984 RESOURCE MANAGEMENT PLAN MAP OF

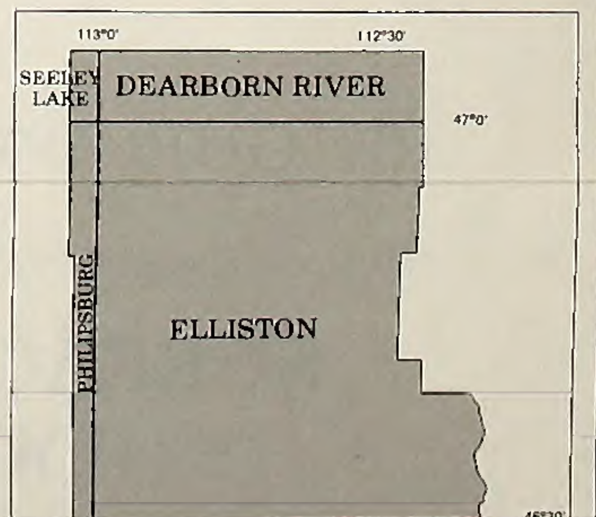
SURFACE OWNERSHIP
(EAST HALF)

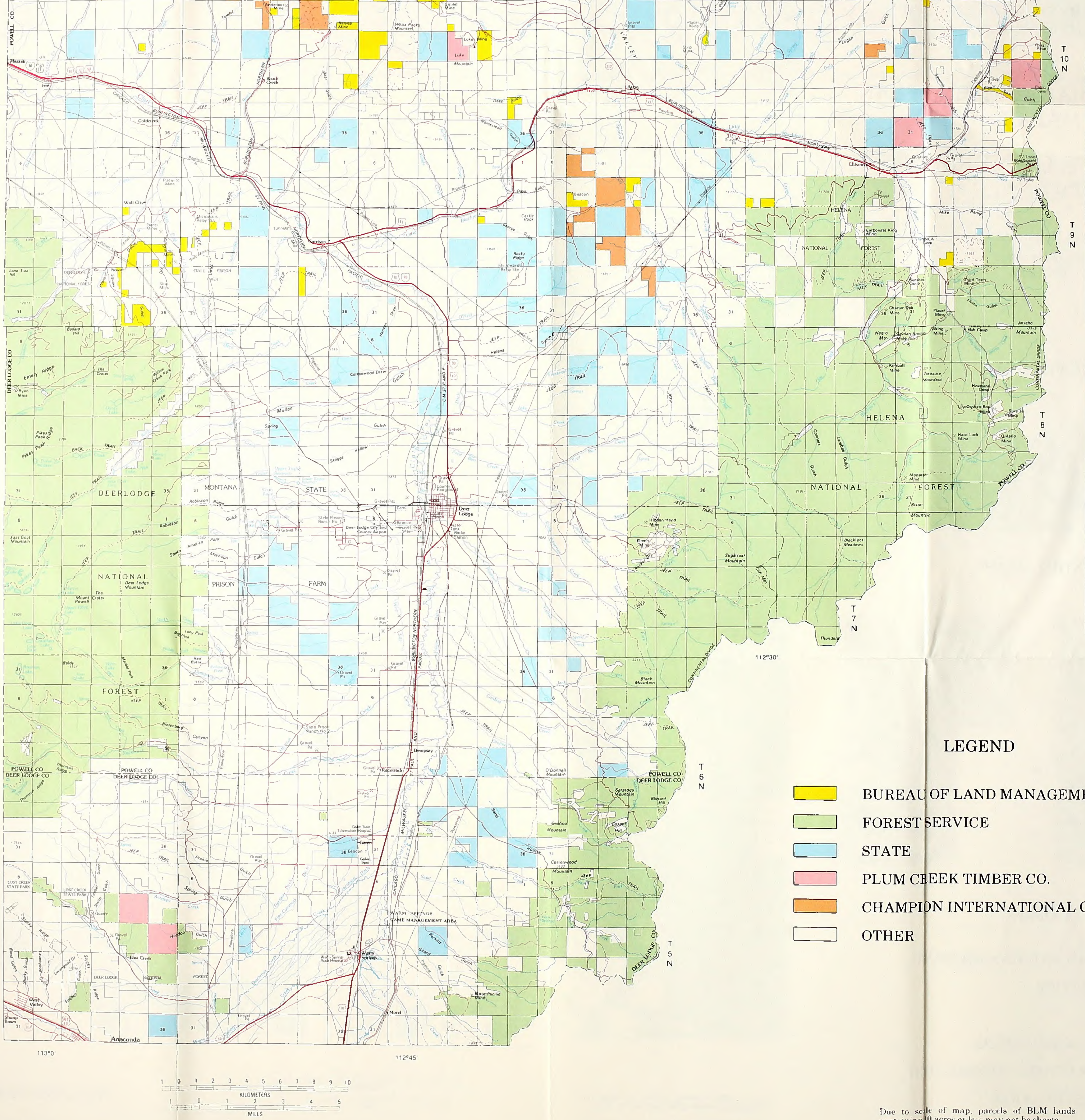
Garnet Resource Area
Butte District
Montana

LOCATION MAP

INDEX MAPS

1:100,000





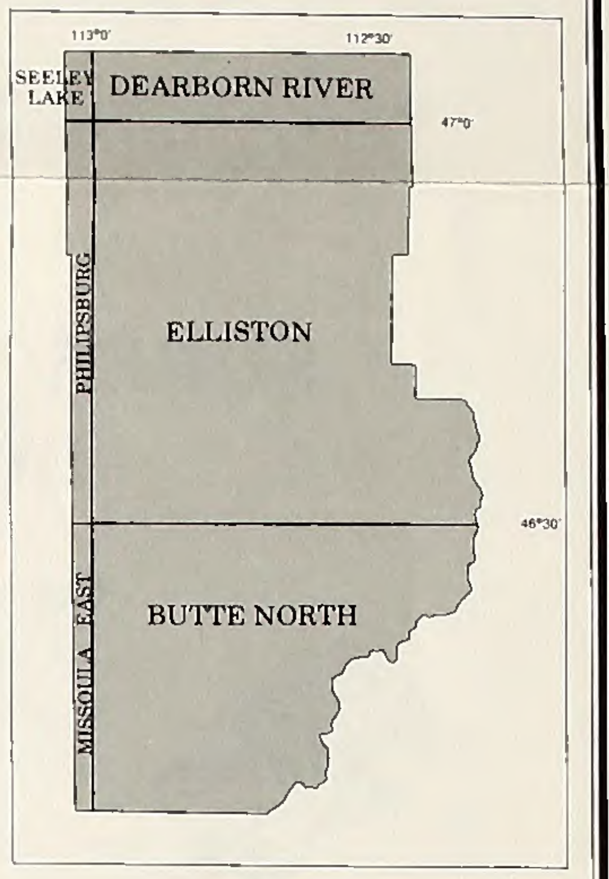
SCALE

1:126,720 ½" = 1 mile

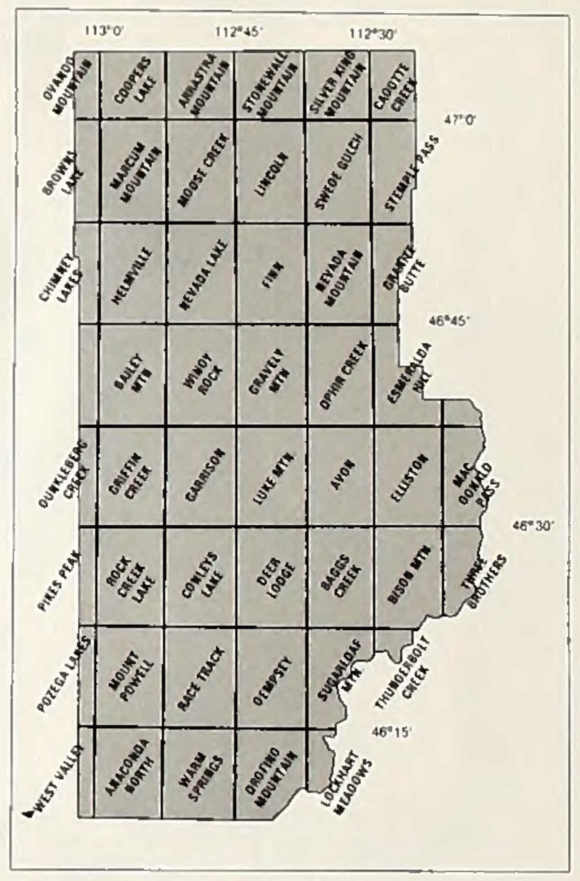
LEGEND

- 🟨 BUREAU OF LAND MANAGEMENT
- 🟩 FOREST SERVICE
- 🟦 STATE
- 🟥 PLUM CREEK TIMBER CO.
- 🟧 CHAMPION INTERNATIONAL CORP.
- ⬜ OTHER

1:100,000



USGS 7½'



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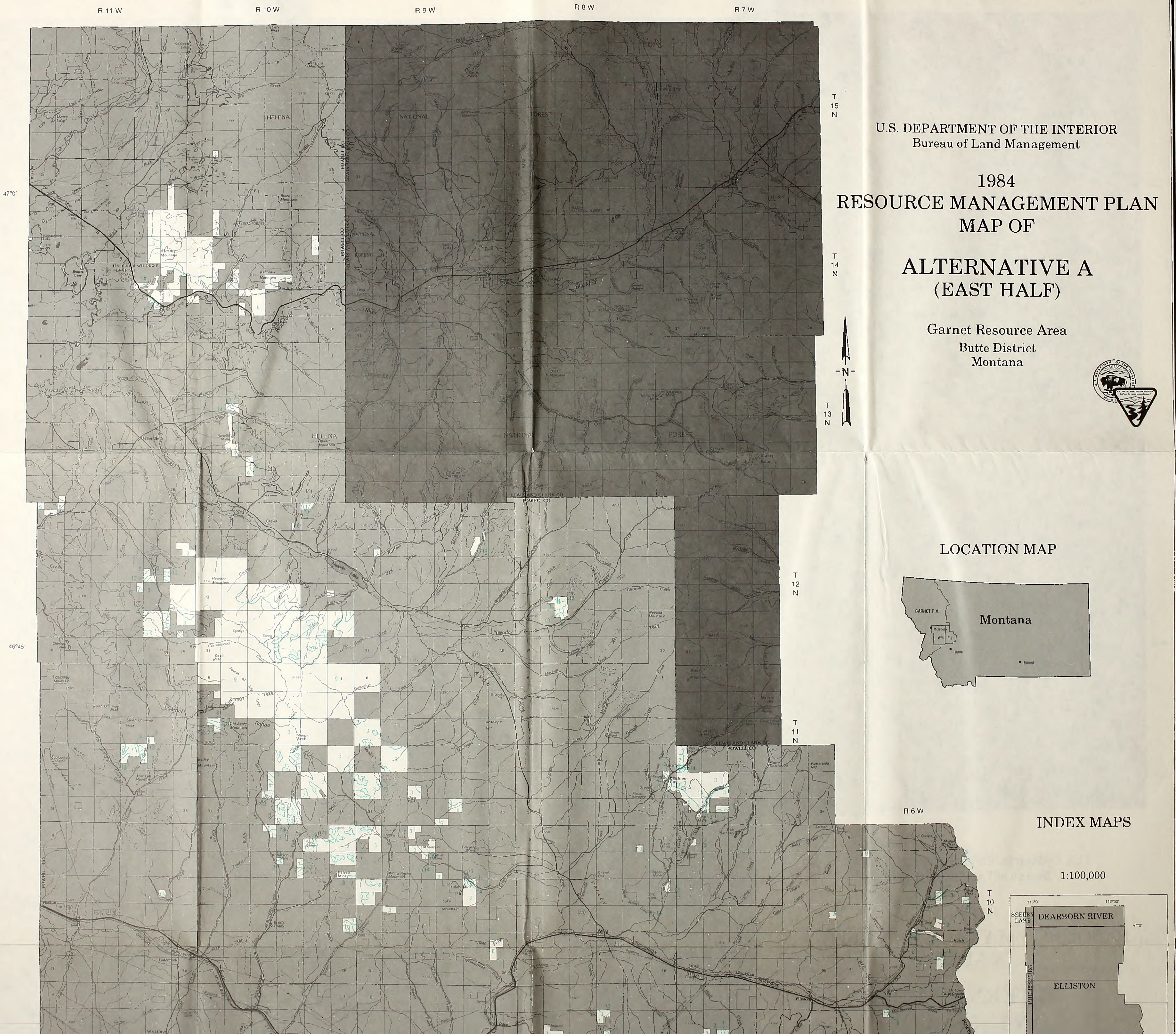


U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

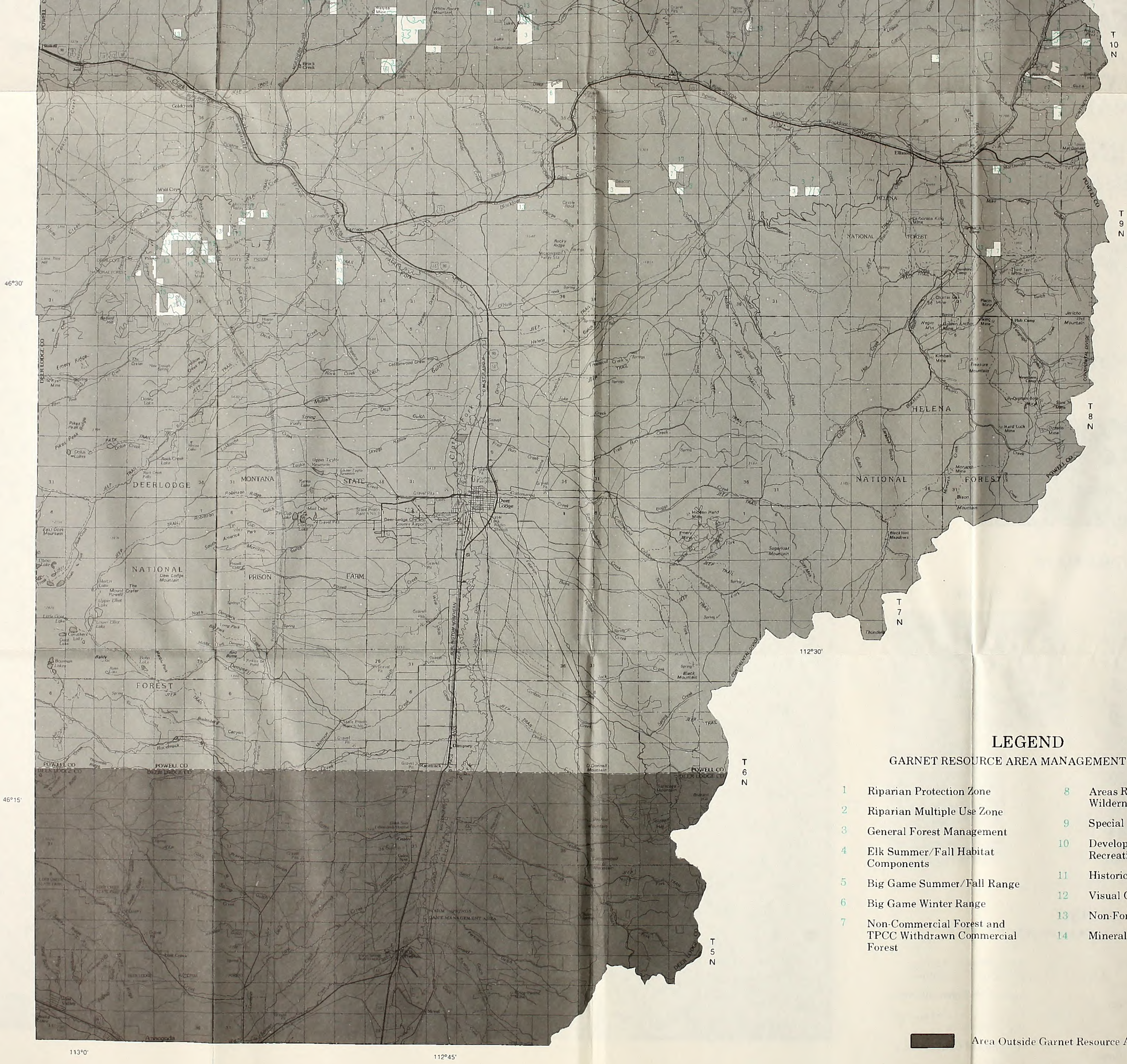
1984
RESOURCE MANAGEMENT PLAN MAP OF

ALTERNATIVE A
(EAST HALF)

Garnet Resource Area
Butte District
Montana

LOCATION MAP

INDEX MAPS



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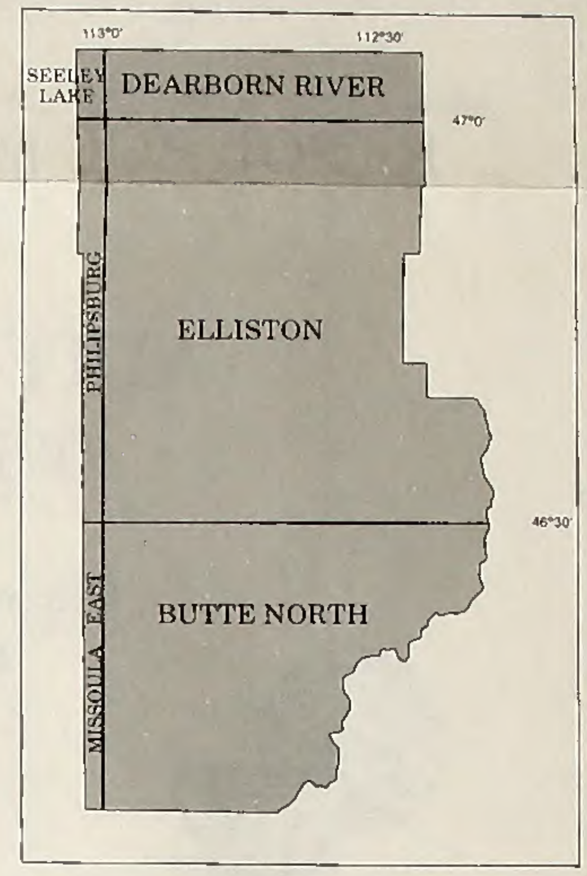

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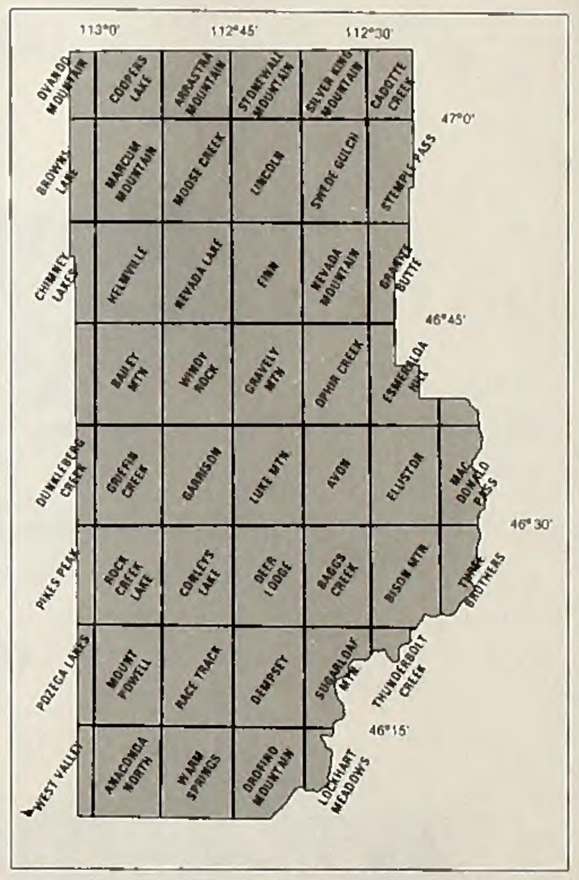

LEGEND

GARNET RESOURCE AREA MANAGEMENT AREAS

1 Riparian Protection Zone
2 Riparian Multiple Use Zone
3 General Forest Management
4 Elk Summer/Fall Habitat Components
5 Big Game Summer/Fall Range
6 Big Game Winter Range
7 Non-Commercial Forest and TPCC Withdrawn Commercial Forest
8 Areas Recommended for Wilderness Designation
9 Special Management Areas
10 Developed and Undeveloped Recreation Sites
11 Historic and Cultural Sites
12 Visual Corridor
13 Non-Forest Habitat
14 Mineral Production Area

▇ Area Outside Garnet Resource Area

SCALE
1:126,720 ½" = 1 mile

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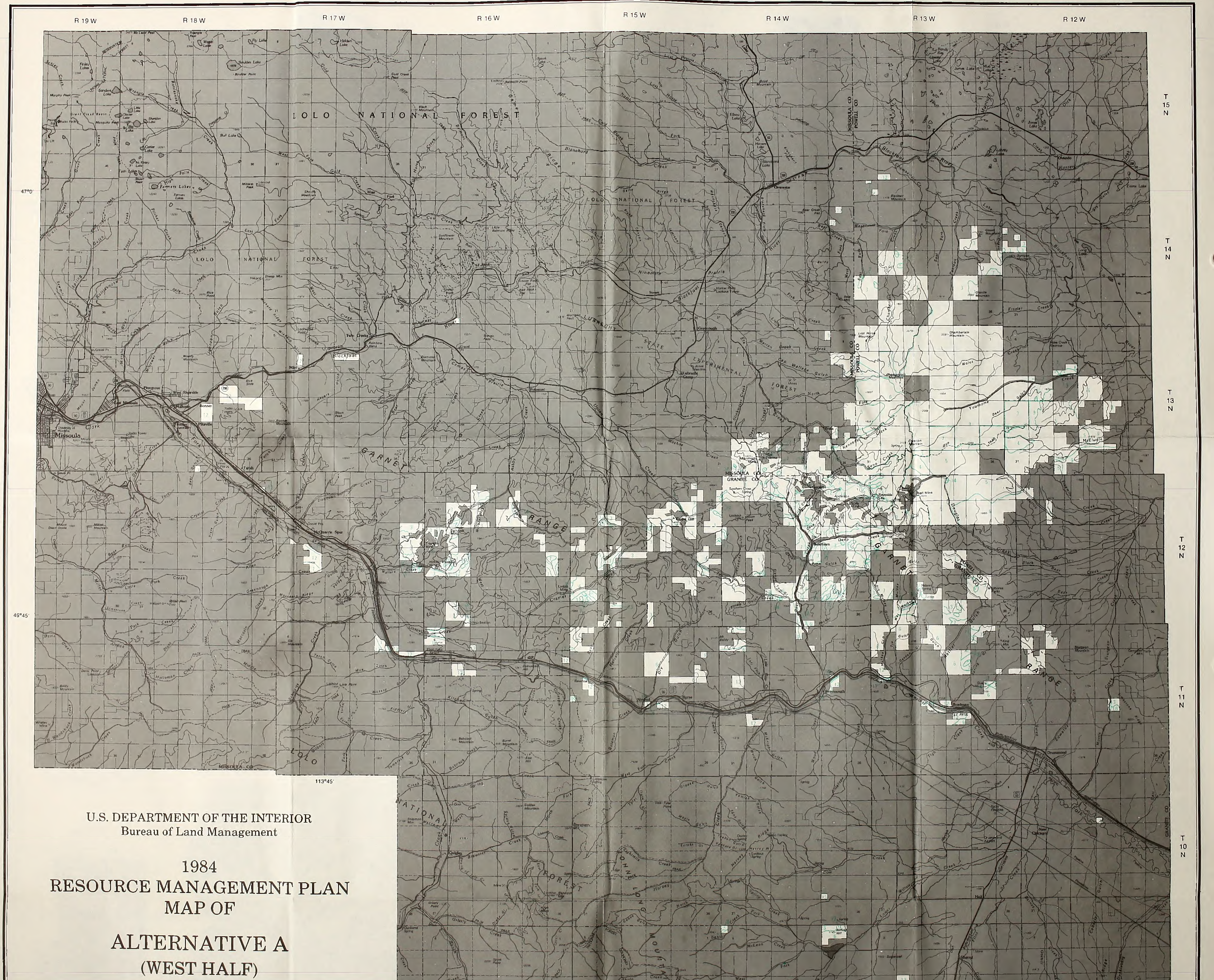


U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984 RESOURCE MANAGEMENT PLAN MAP OF

ALTERNATIVE A

(WEST HALF)

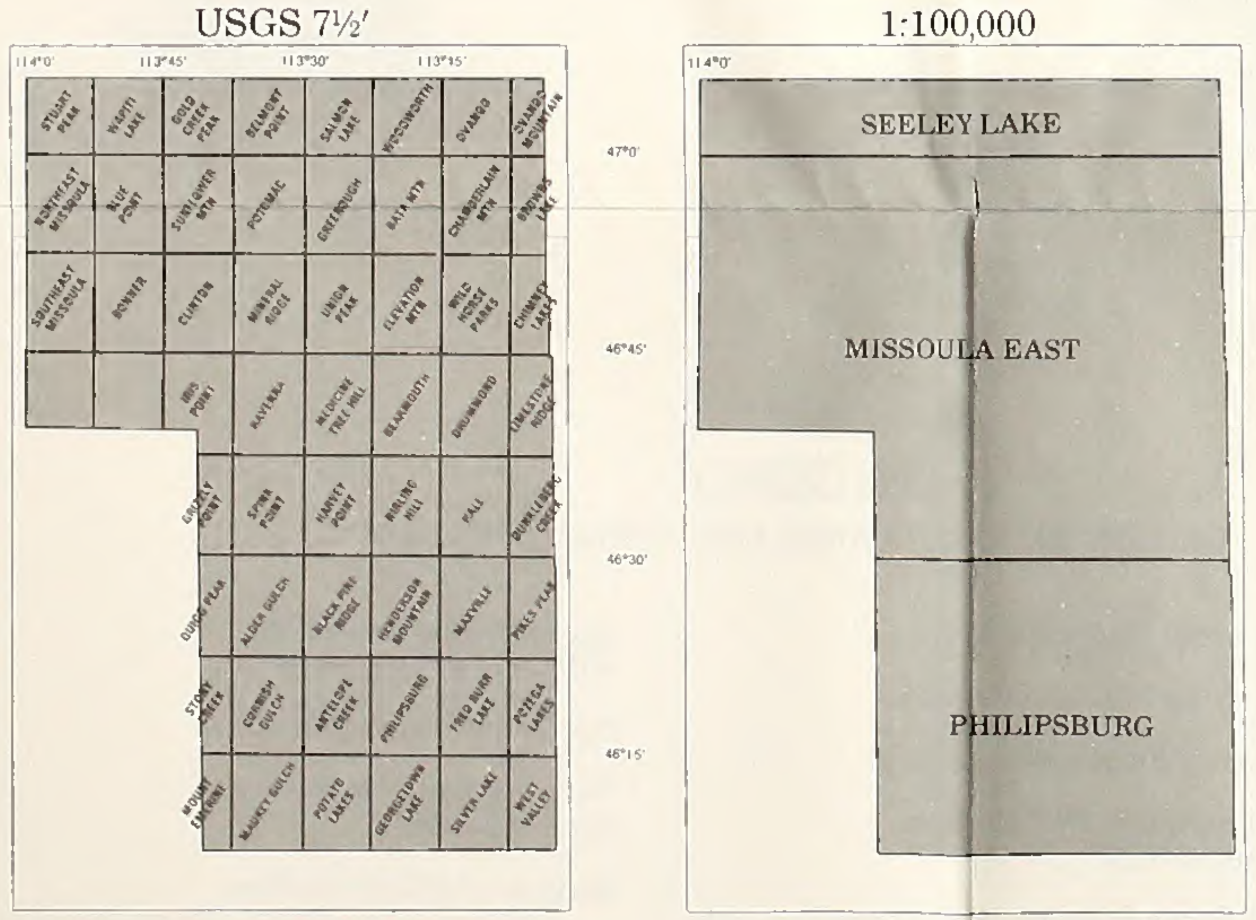
U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN MAP OF
ALTERNATIVE A
(WEST HALF)

Garnet Resource Area
Butte District
Montana

LOCATION MAP

INDEX MAPS


USGS 7½'

1:100,000

LEGEND

GARNET RESOURCE AREA MANAGEMENT AREAS

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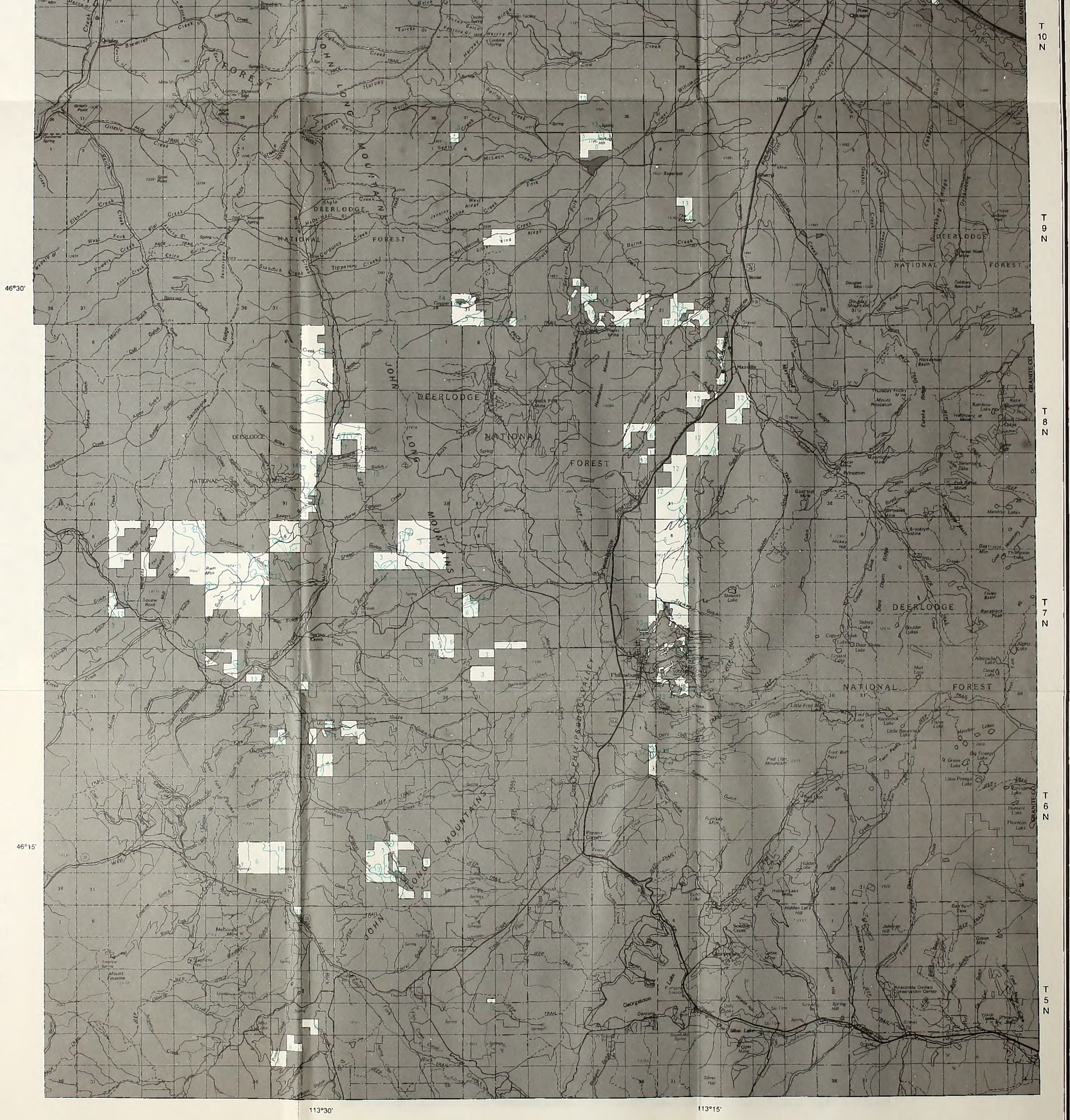

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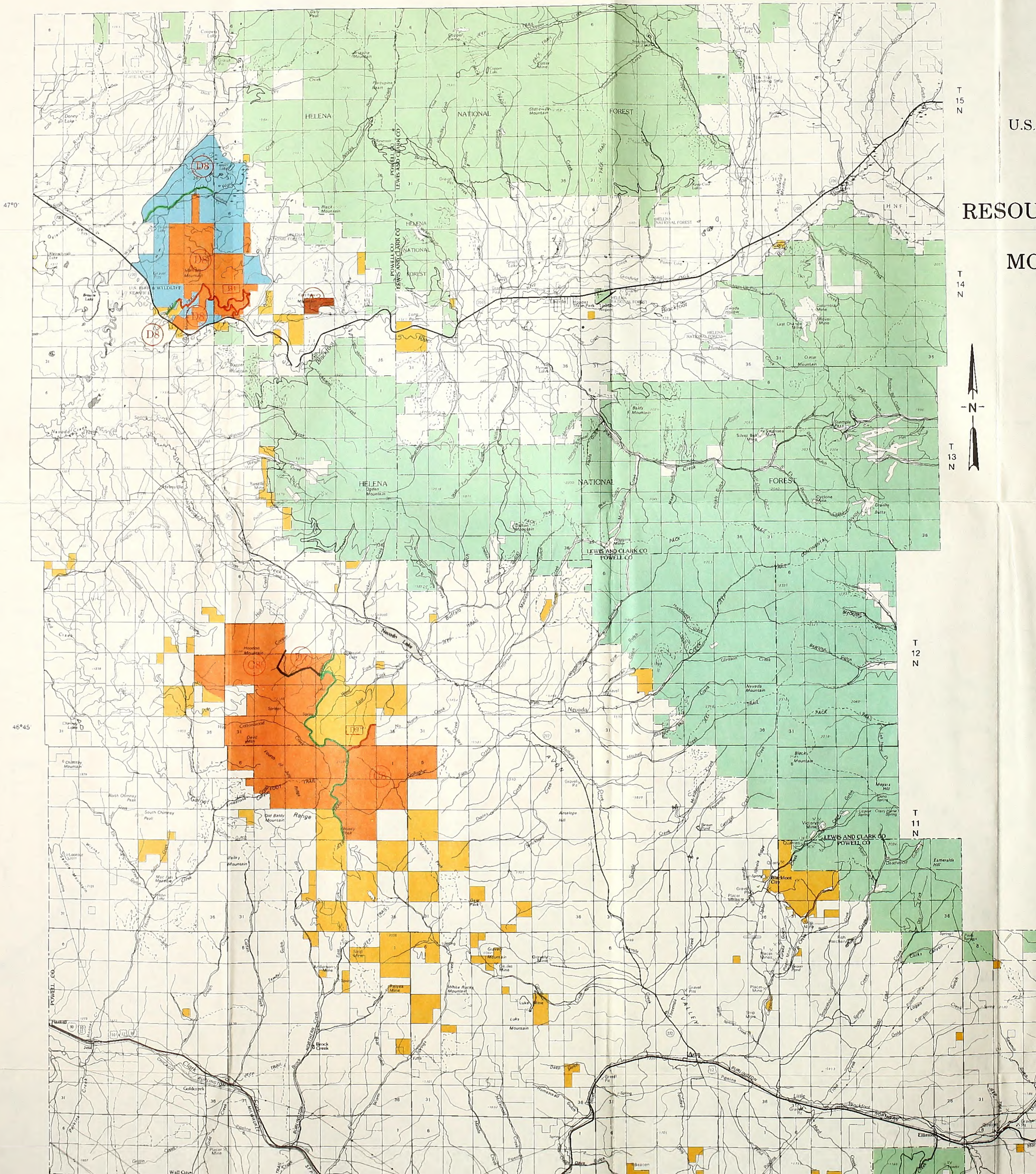
KILOMETERS
MILES

SCALE
1:126,720 ½" = 1 mile

W½ ALTERNATIVE A (Front)

E½ ALTERNATIVE A (Back)

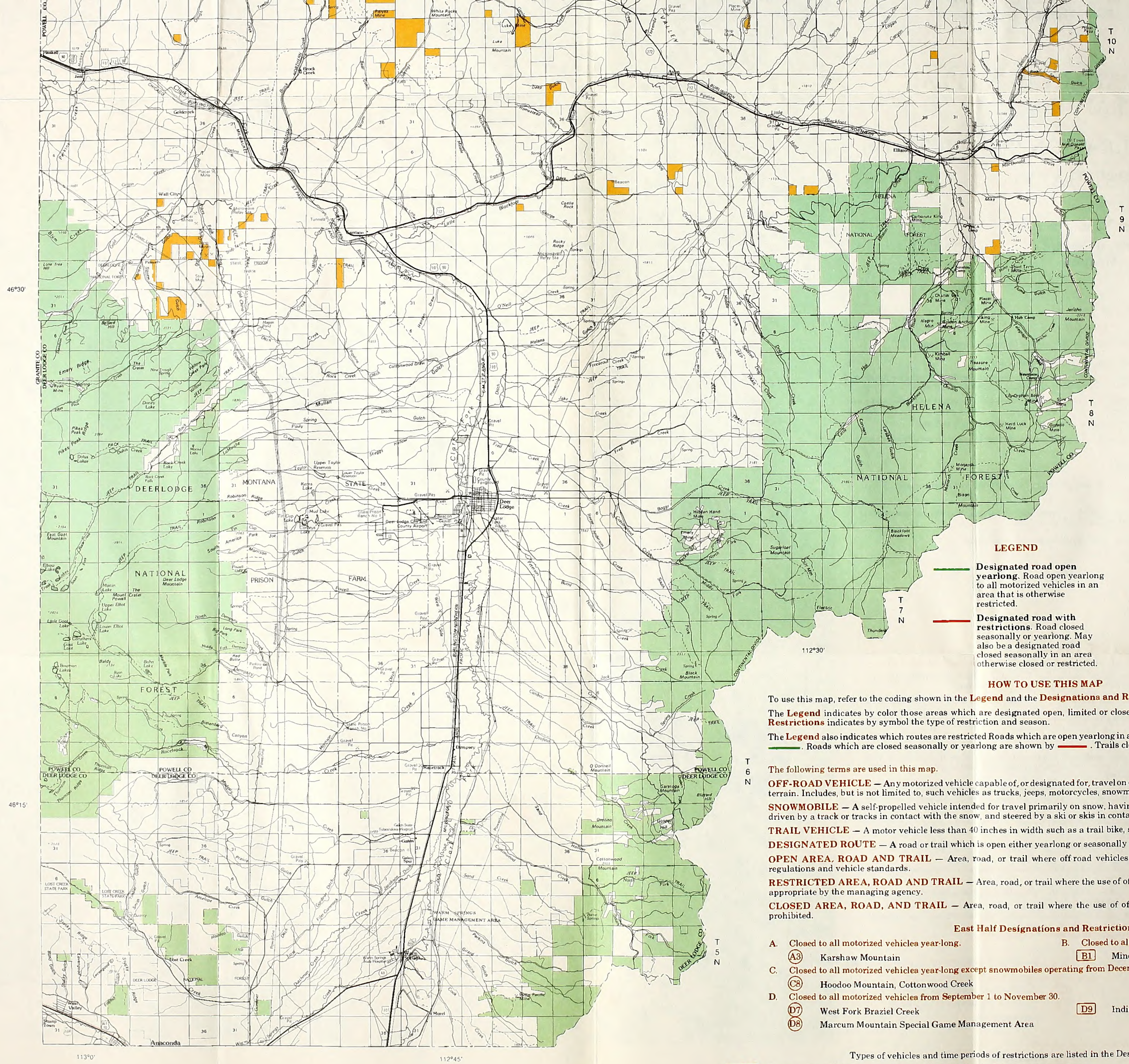


U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN
MAP OF
MOTORIZED RECREATION RESTRICTIONS
(EAST HALF)

Garnet Resource Area
Butte District
Montana

LOCATION MAP



LEGEND

Designated road open yearlong. Road open yearlong to all motorized vehicles in an area that is otherwise restricted.

Designated road with restrictions. Road closed seasonally or yearlong. May also be a designated road closed seasonally in an area otherwise closed or restricted.

Designated trail with restrictions. Trail closed seasonally or yearlong.

A Reatriction reference letter.

○ Area restriction reference.

▭ Road restriction reference.

▱ Trail restriction reference.

HOW TO USE THIS MAP

To use this map, refer to the coding shown in the **Legend** and the **Designationa and Restrictions**.

The **Legend** indicates by color those areas which are designated open, limited or closed to motorized travel. The **Designations and Restrictions** indicates by symbol the type of restriction and season.

The **Legend** also indicates which routes are restricted Roads which are open yearlong in areas otherwise cloaed or restricted are shown by ——. Roads which are closed seasonally or yearlong are shown by ——. Trails closed aeasonally or yearlong – – –.

The following terms are used in this map.

OFF-ROAD VEHICLE — Any motorized vehicle capable of, or designated for, travel on or immediately over land, water, or other natural terrain. Includes, but is not limited to, such vehicles as trucks, jeeps, motorcycles, snowmobiles, amphibians, and air cushion vehicles.

SNOWMOBILE — A self-propelled vehicle intended for travel primarily on snow, having a curb weight of not more than 1,000 pounds, driven by a track or tracks in contact with the snow, and steered by a ski or skis in contact with the snow.

TRAIL VEHICLE — A motor vehicle less than 40 inches in width such as a trail bike, scooter, motorcycle, designed for trail use.

DESIGNATED ROUTE — A road or trail which is open either yearlong or seasonally in an area otherwise restricted or closed.

OPEN AREA, ROAD AND TRAIL — Area, road, or trail where off-road vehicles may be operated subject to agency operating regulations and vehicle standards.

RESTRICTED AREA, ROAD AND TRAIL — Area, road, or trail where the use of off-road vehicles is subject to restrictions deemed appropriate by the managing agency.

CLOSED AREA, ROAD, AND TRAIL — Area, road, or trail where the use of off-road vehicles is permanently or temporarily prohibited.

East Half Designations and Reatrictions

A. Closed to all motorized vehiclea year-long.
  - Ⓐ3 Karshaw Mountain

B. Closed to all vehicles September 1 to April 30.
  - [B1] Mineral Hill Road

C. Closed to all motorized vehiclea year-long except snowmobiles operating from December 1 to April 30.
  - Ⓒ8 Hoodoo Mountain, Cottonwood Creek

D. Closed to all motorized vehiclea from September 1 to November 30.
  - Ⓓ7 West Fork Braziel Creek
  - Ⓓ8 Marcum Mountain Special Game Management Area
  - [D9] Indian Creek Jeep Road

SCALE
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Types of vehicles and time periods of restrictions are listed in the Designations and Restrictions

🟥 Bureau of Land Management Lands closed to all motorized vehicles year-long.

🟧 Bureau of Land Management Lands where *greater travel* restrictions apply; motorized vehicles restricted to roads and trails and seasonally restricted as designated. Snowmobiles allowed as designated.

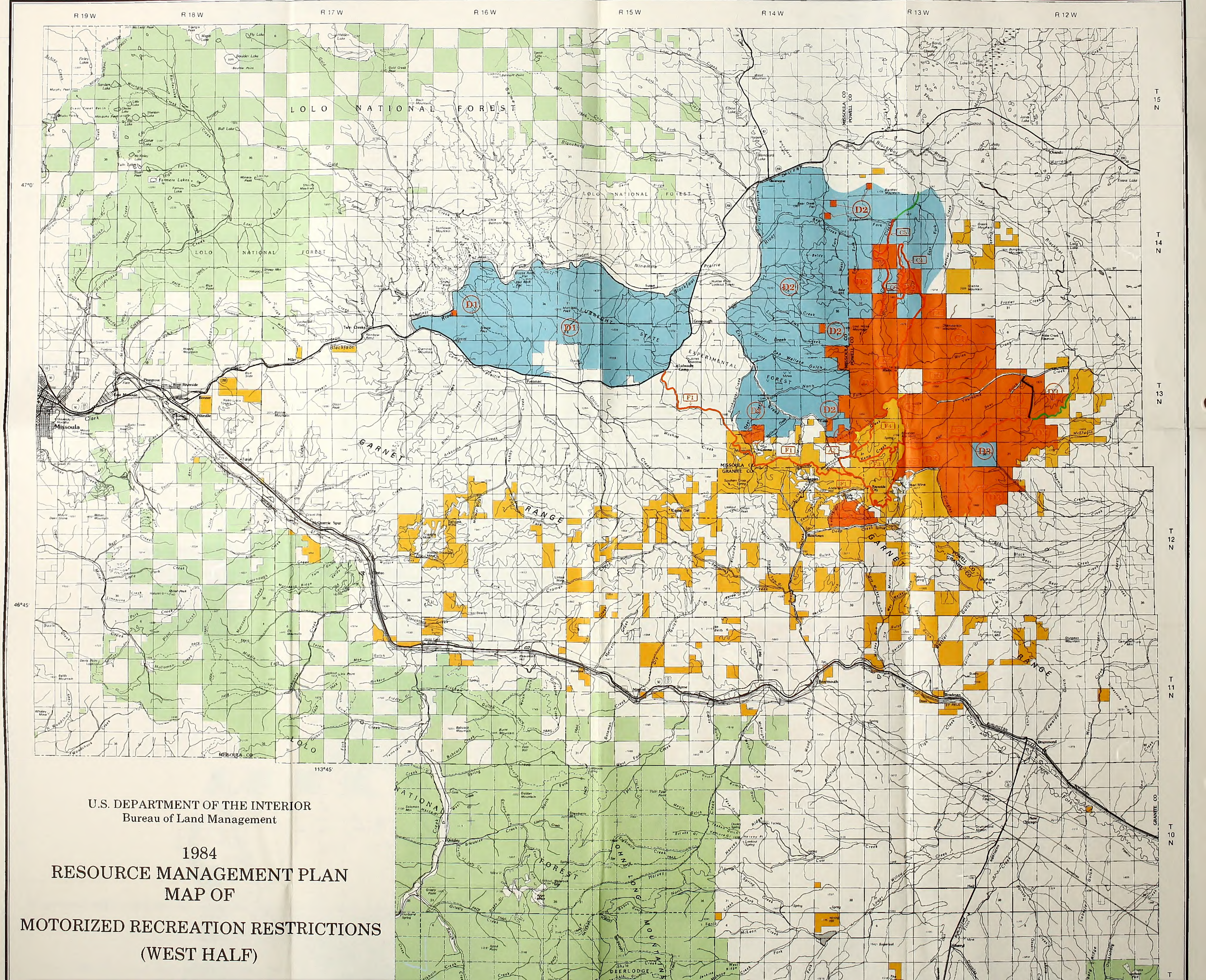
🟨 Bureau of Land Management Lands where *fewer travel* restrictions apply, motorized vehicles, except snowmobiles, are restricted to open roads and trails.

NONE Private lands included in cooperative road closure which are closed to all motorized vehicles.

🟦 Private, state and/or other federal lands with greater travel restrictions through cooperative management.

☐ Other lands not covered by this map.

🟩 Forest Service lands not covered by this map.



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN
MAP OF
MOTORIZED RECREATION RESTRICTIONS
(WEST HALF)

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN MAP OF
MOTORIZED RECREATION RESTRICTIONS
(WEST HALF)

Garnet Resource Area
Butte District
Montana

LEGEND

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- - - - **Designated trail with restrictions.** Trail closed seasonally or yearlong.
- A **Restriction reference letter.**
- ○ **Area restriction reference.**
- ▭ **Road restriction reference.**
- ▱ **Trail restriction reference.**

HOW TO USE THIS MAP

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West Half — Designations and Restrictions

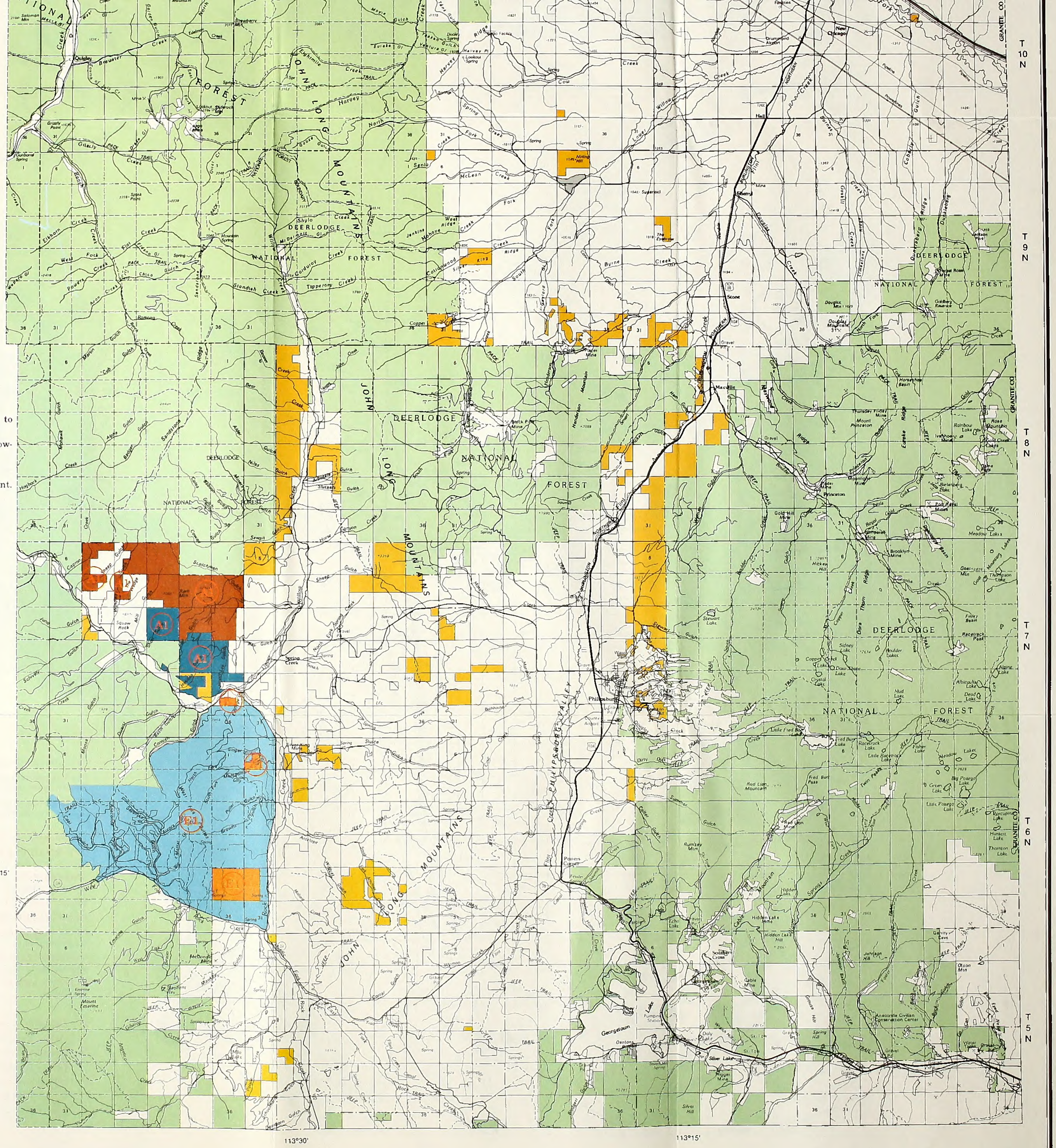
A. Closed to all motorized vehicles year-long.
- (A1) Ram Mountain
- A2 Kennedy Creek Spur Road

C. Closed to all motorized vehicles year-long except snowmobiles operating from December 1 to April 30.
- (C1) Wales-Yourname Creek
- C2 Chamberlain Meadows Road
- C3 McElwain Fire Road
- C4 Chamberlain Creek Jeep Road
- C5 Chamberlain Creek Road
- C6 East Fork Chamberlain Creek Road
- C7 Snowcap Trail

D. Closed to all motorized vehicles from September 1 to November 30.
- (D1) Morrison Peak
- (D2) Blackfoot Special Management Area
- (D3) McElwain, Murray, Douglas Creeks
- (D4) Deer Creek
- (D5) Summit Cabin
- D6 Keno Creek Spur Road

E. Closed to all motorized vehicles October 15 to November 30.
- (E1) West Fork Buttes

F. Closed to all motorized vehicles except snowmobiles from January 1 to April 30.
- F1 Garnet Range Road
- F2 Elevation Mountain Fire Road
- F3 Keno Creek Road
- F4 Kennedy Creek Road
- F5 Wales Creek Fire Road



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1 0 1 2 3 4 5 6 7 8 9 10
KILOMETERS
1 0 1 2 3 4 5
MILES

SCALE
1:126,720 ½″ = 1 mile

W½ MRR MAP (Front)

E½ MRR MAP (Back)

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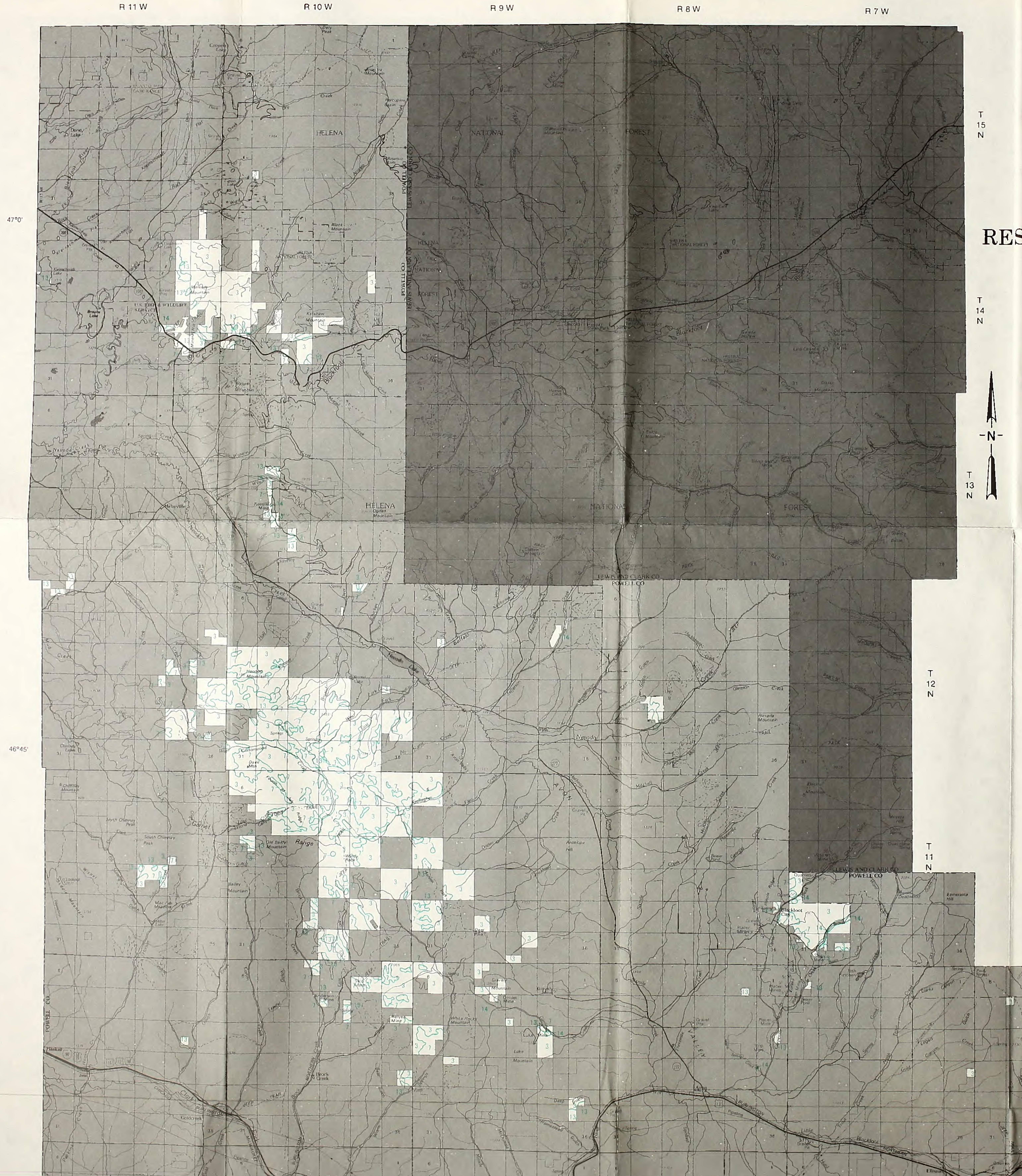
Library
Bldg. 50, Denver Federal Center
Denver, CO 80225



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN
MAP OF

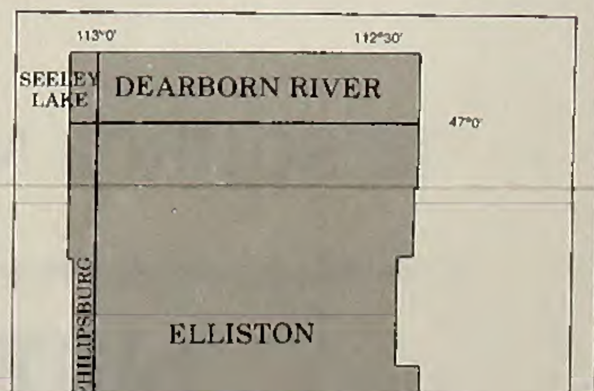
ALTERNATIVE B
(EAST HALF)

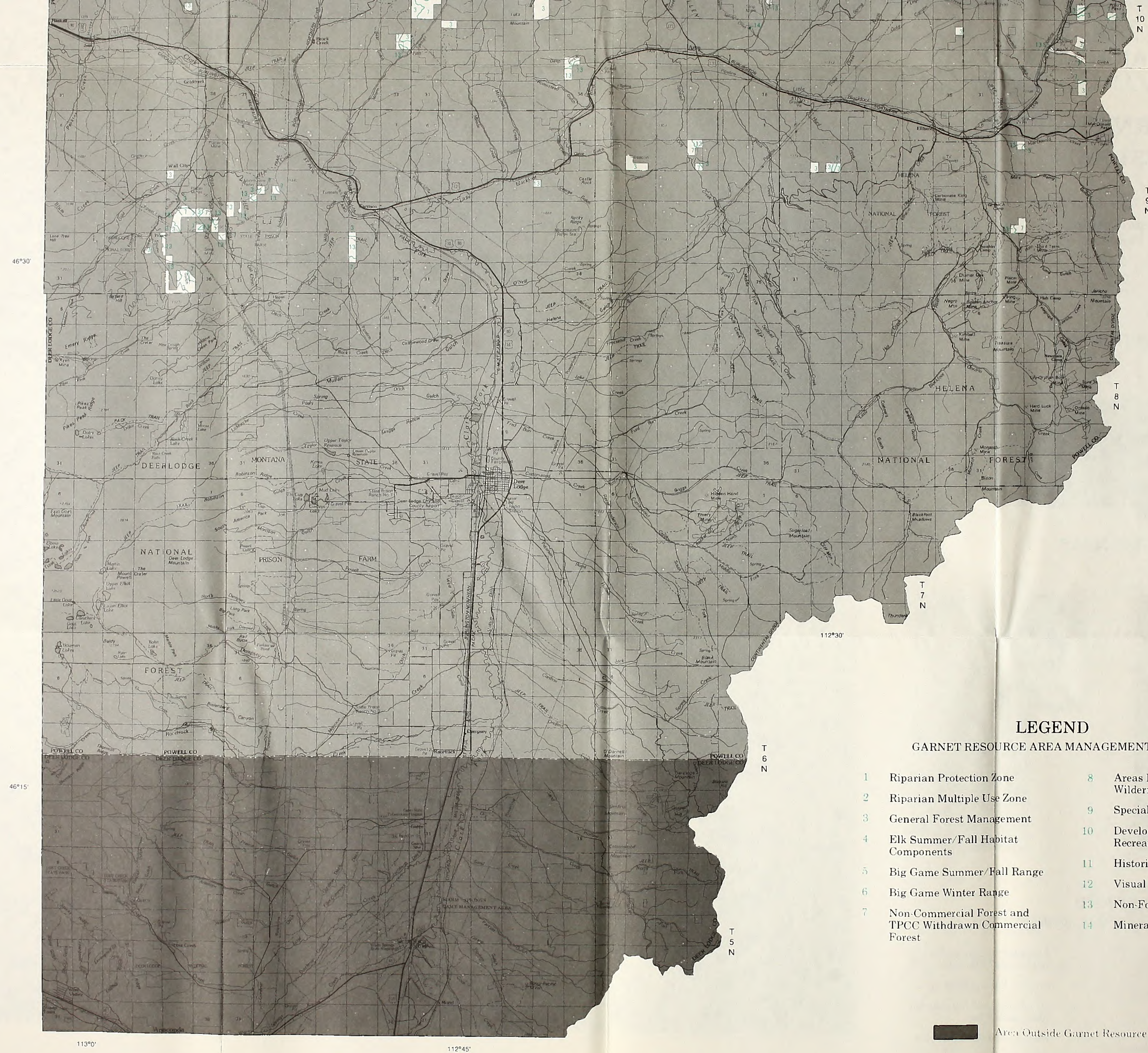
Garnet Resource Area
Butte District
Montana

LOCATION MAP

INDEX MAPS

1:100,000





SCALE

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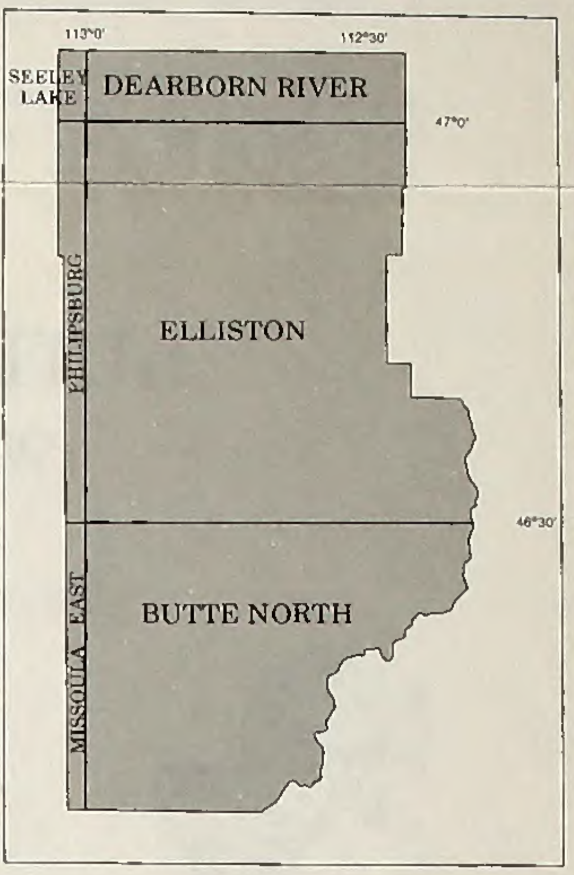
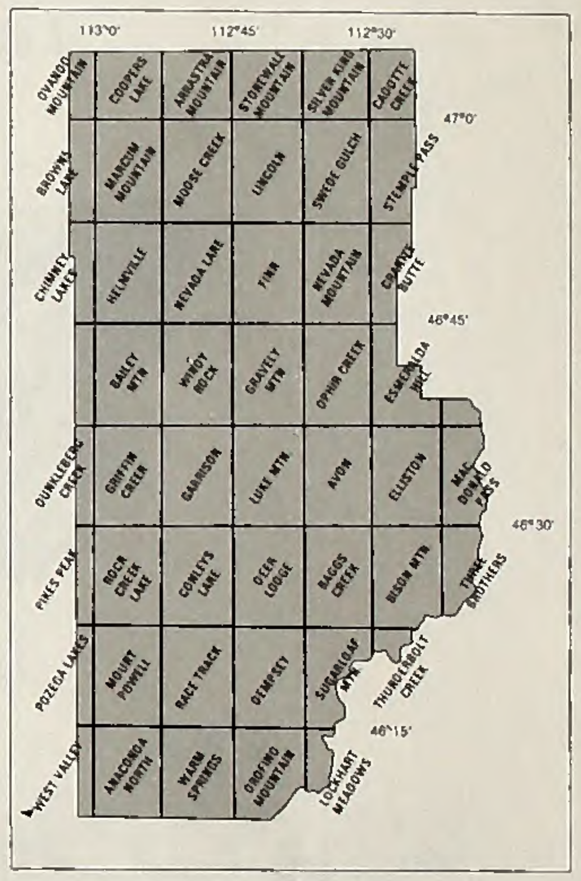


USGS 7½'



LEGEND

GARNET RESOURCE AREA MANAGEMENT AREAS

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■ Area Outside Garnet Resource Area

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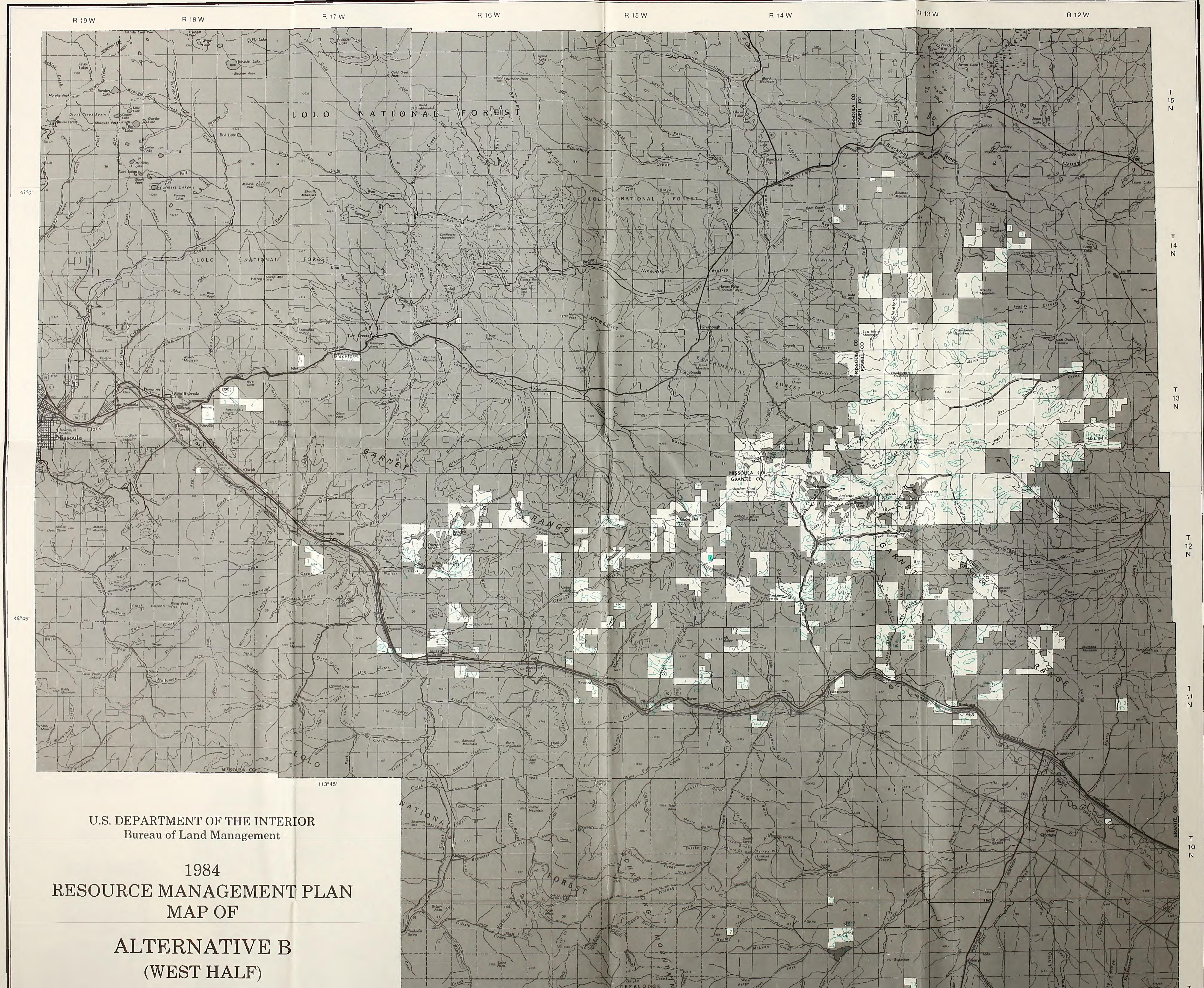


U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN
MAP OF
ALTERNATIVE B
(WEST HALF)

Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN MAP OF
ALTERNATIVE B
(WEST HALF)

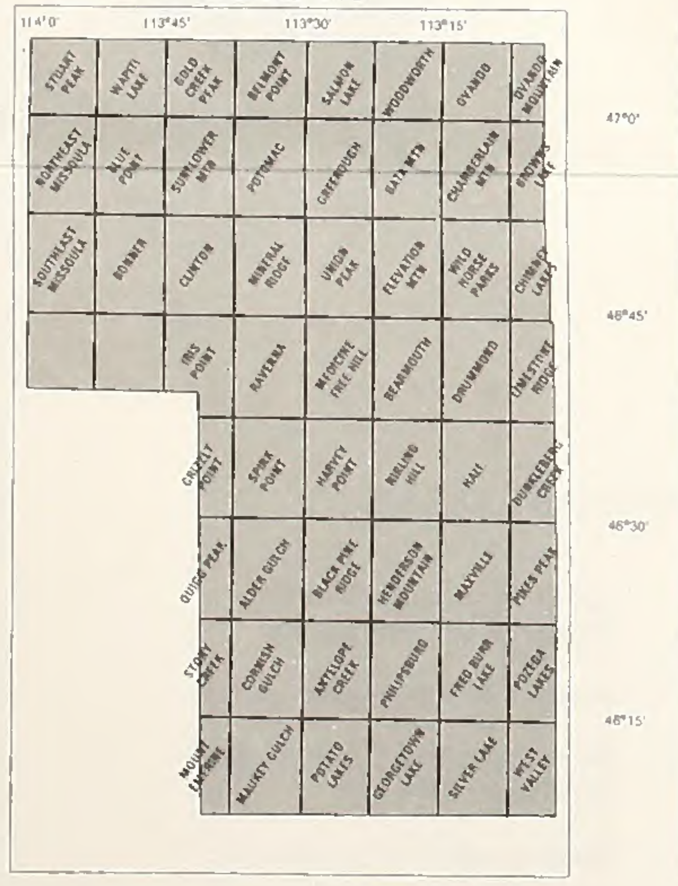
Garnet Resource Area
Butte District
Montana

-N-

LOCATION MAP

INDEX MAPS

USGS 7½′



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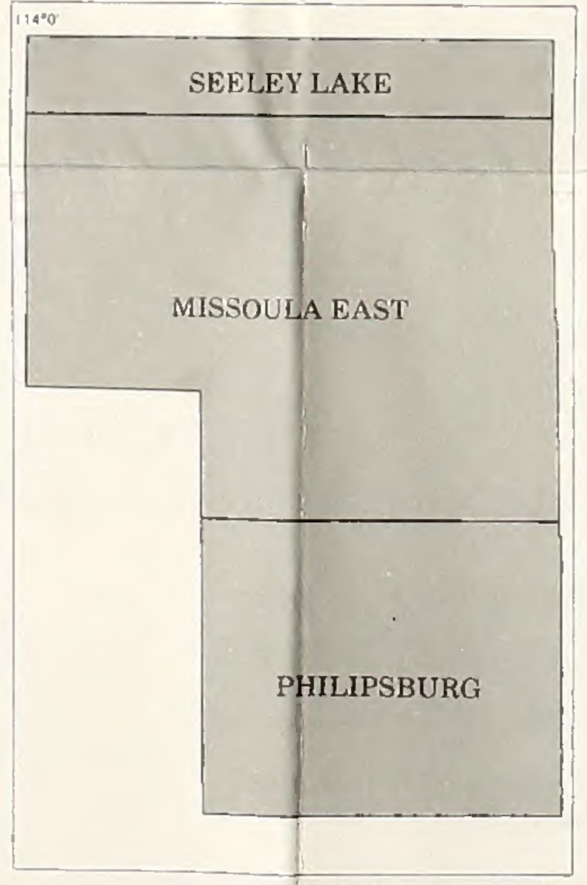

LEGEND

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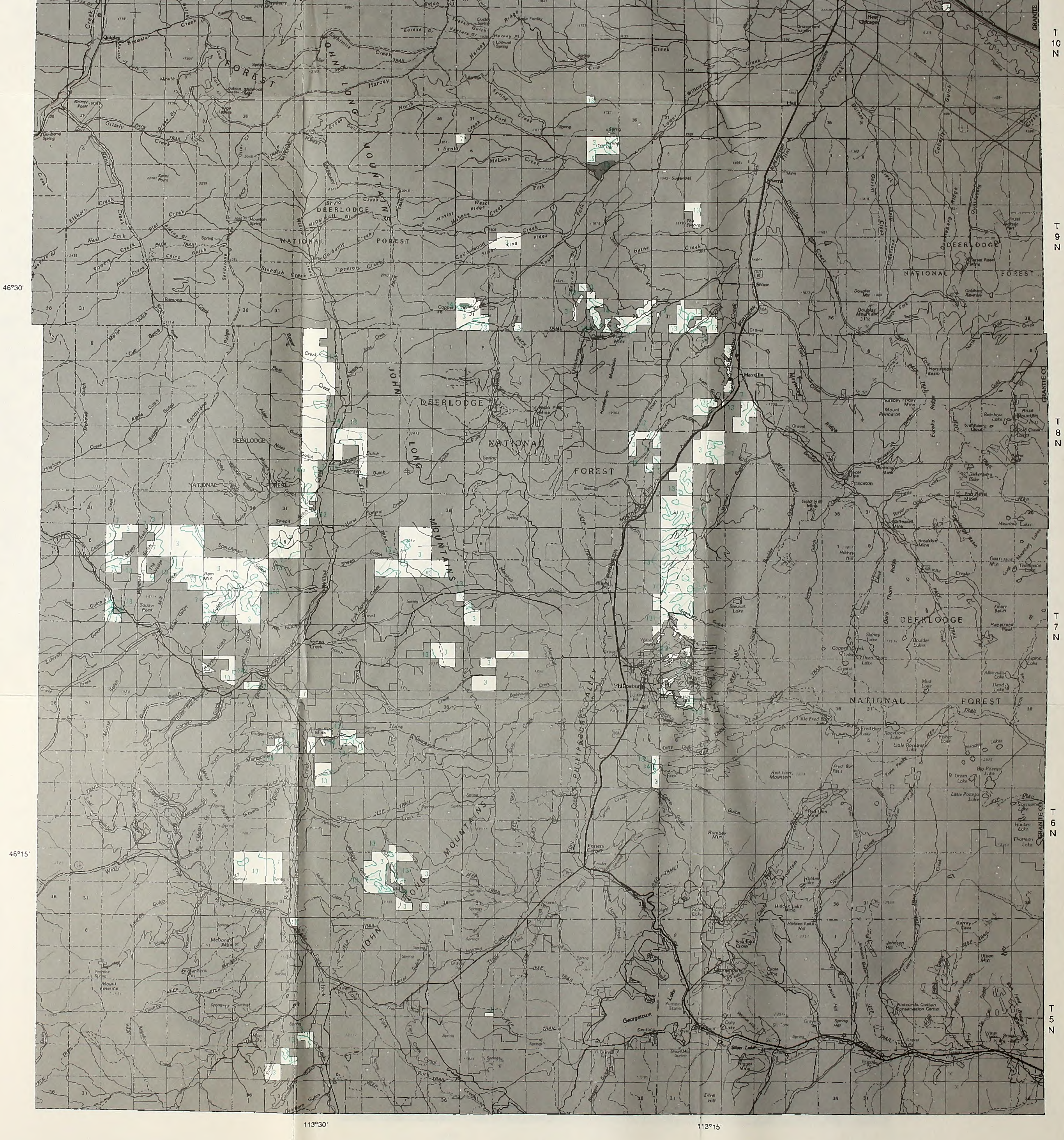

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SCALE
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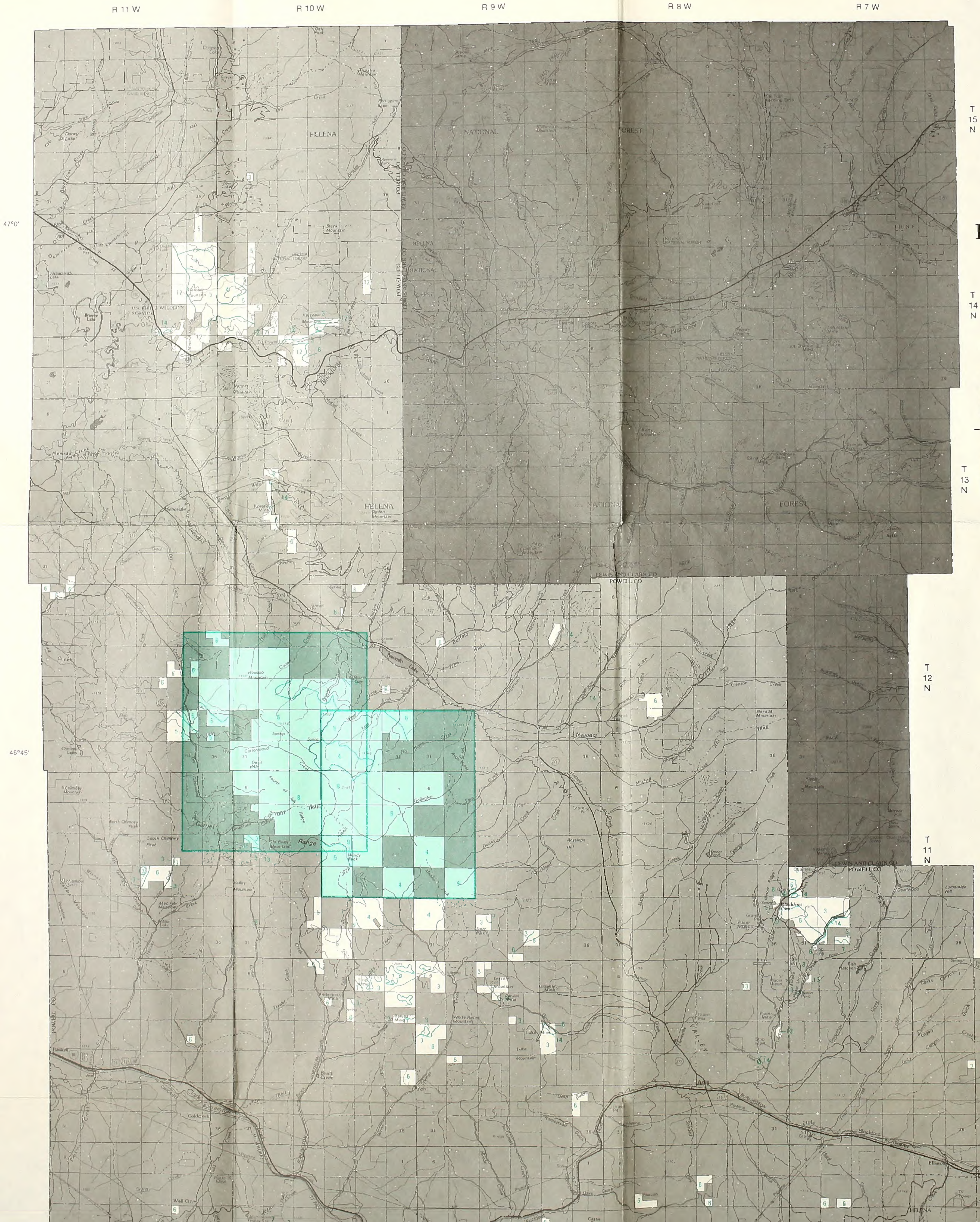
W½ ALTERNATIVE B (Front)

E½ ALTERNATIVE B (Back)



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN MAP OF

ALTERNATIVES C & D
(EAST HALF)

Garnet Resource Area
Butte District
Montana

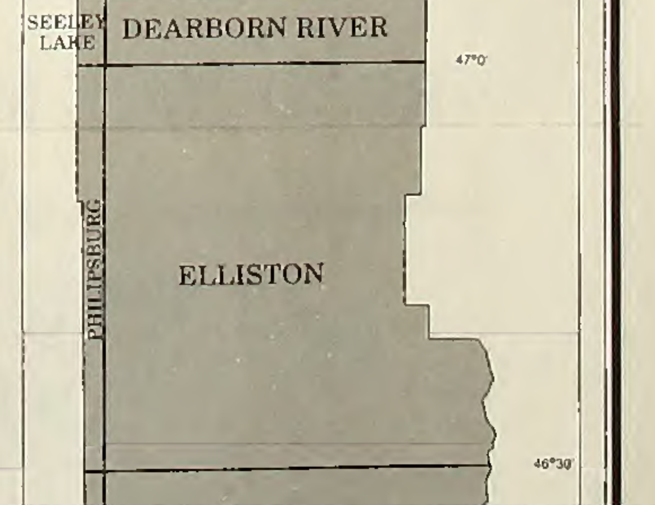
LOCATION MAP

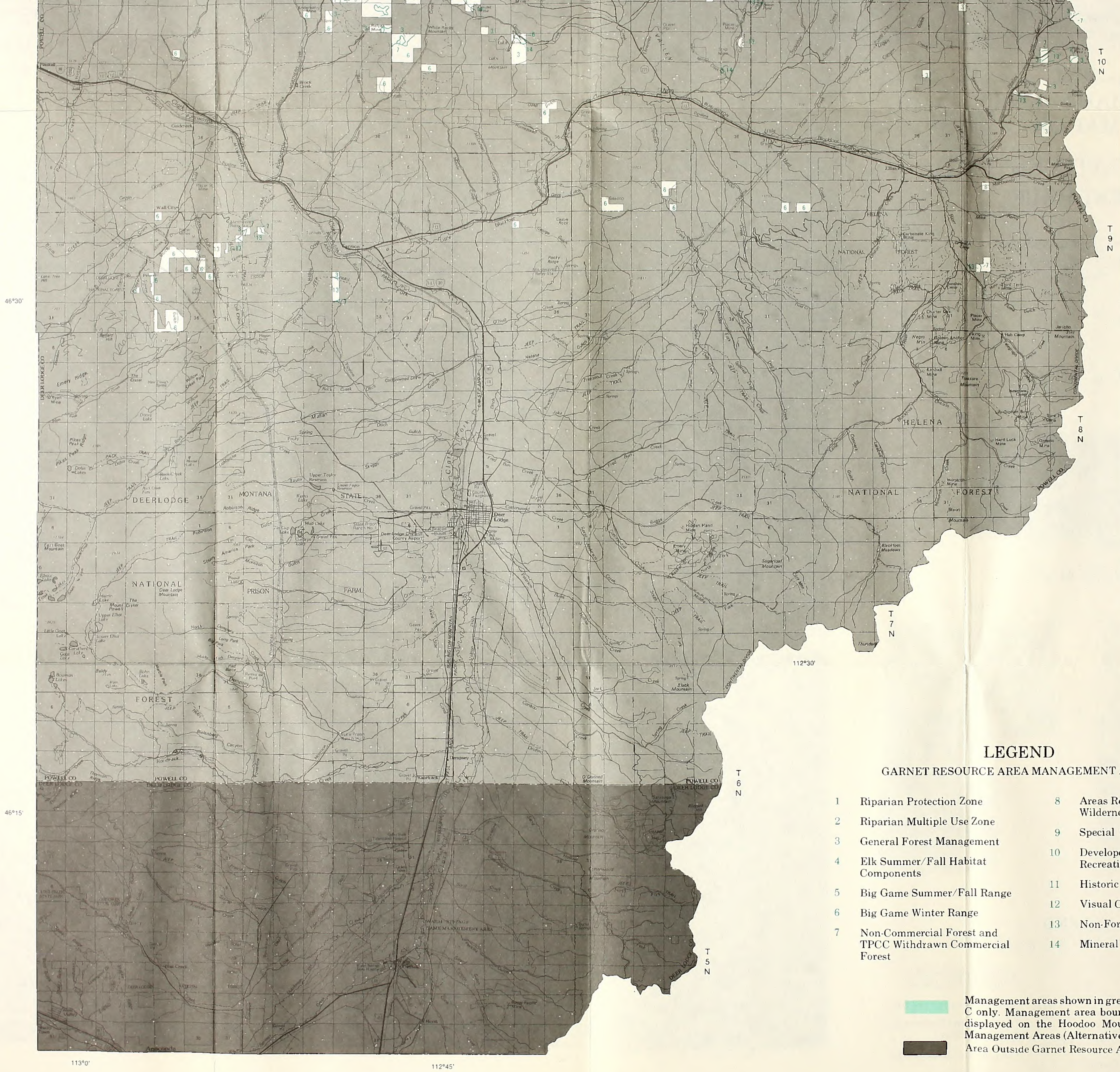
R 6 W

T 10 N

INDEX MAPS

1:100,000





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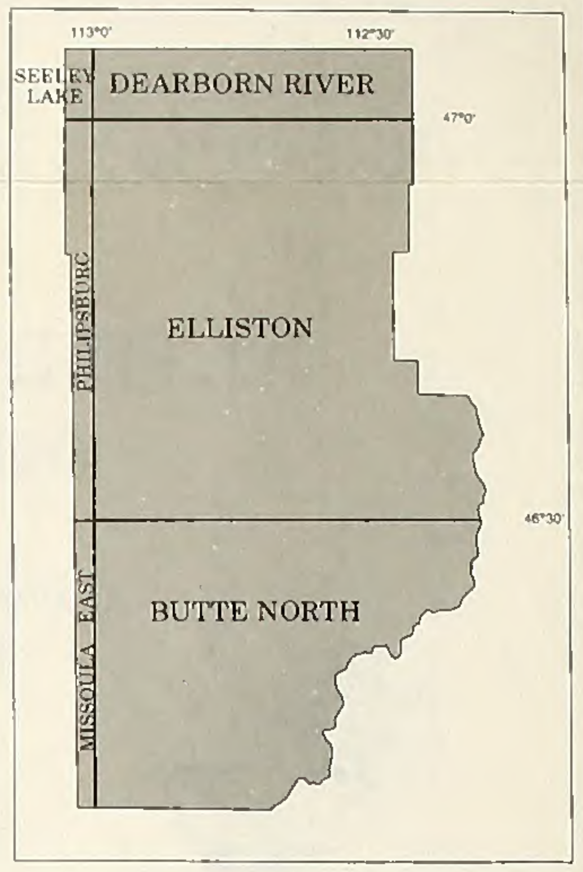
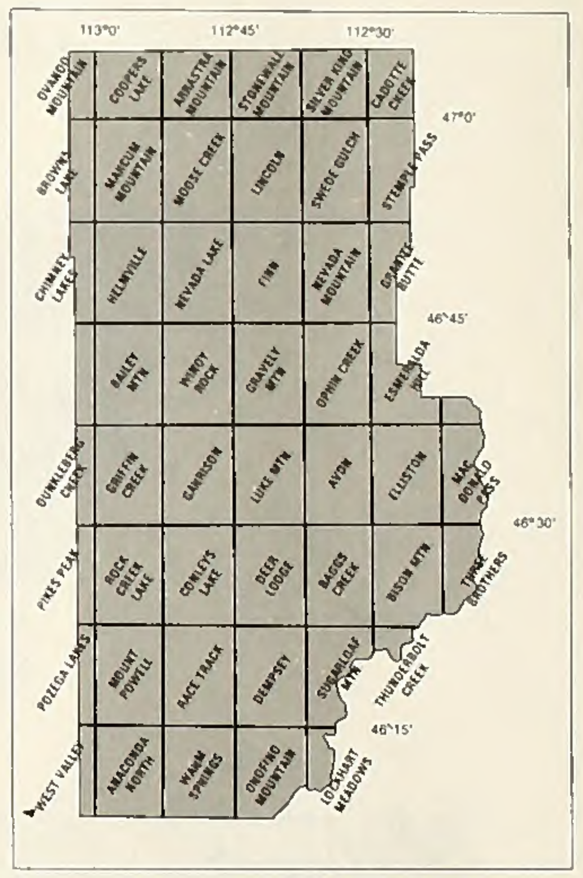


USGS 7½'



LEGEND

GARNET RESOURCE AREA MANAGEMENT AREAS

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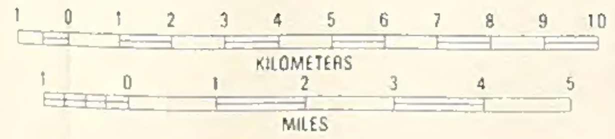
🟩	Management areas shown in green shading are for Alternative C only. Management area boundaries for Alternative D are displayed on the Hoodoo Mountain and Gallagher Creek Management Areas (Alternative D) maps in Chapter 2.
⬛	Area Outside Garnet Resource Area



SCALE

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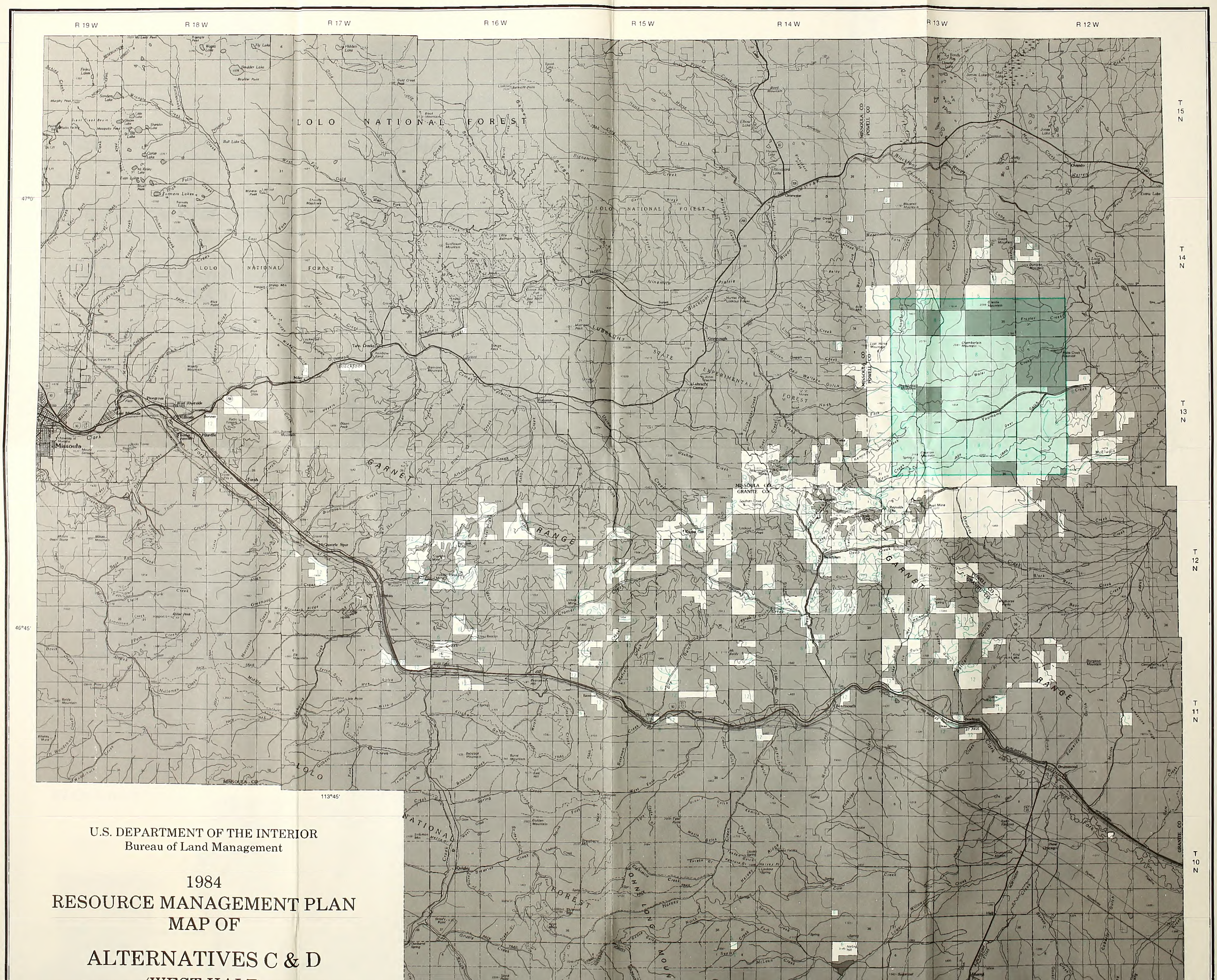


U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

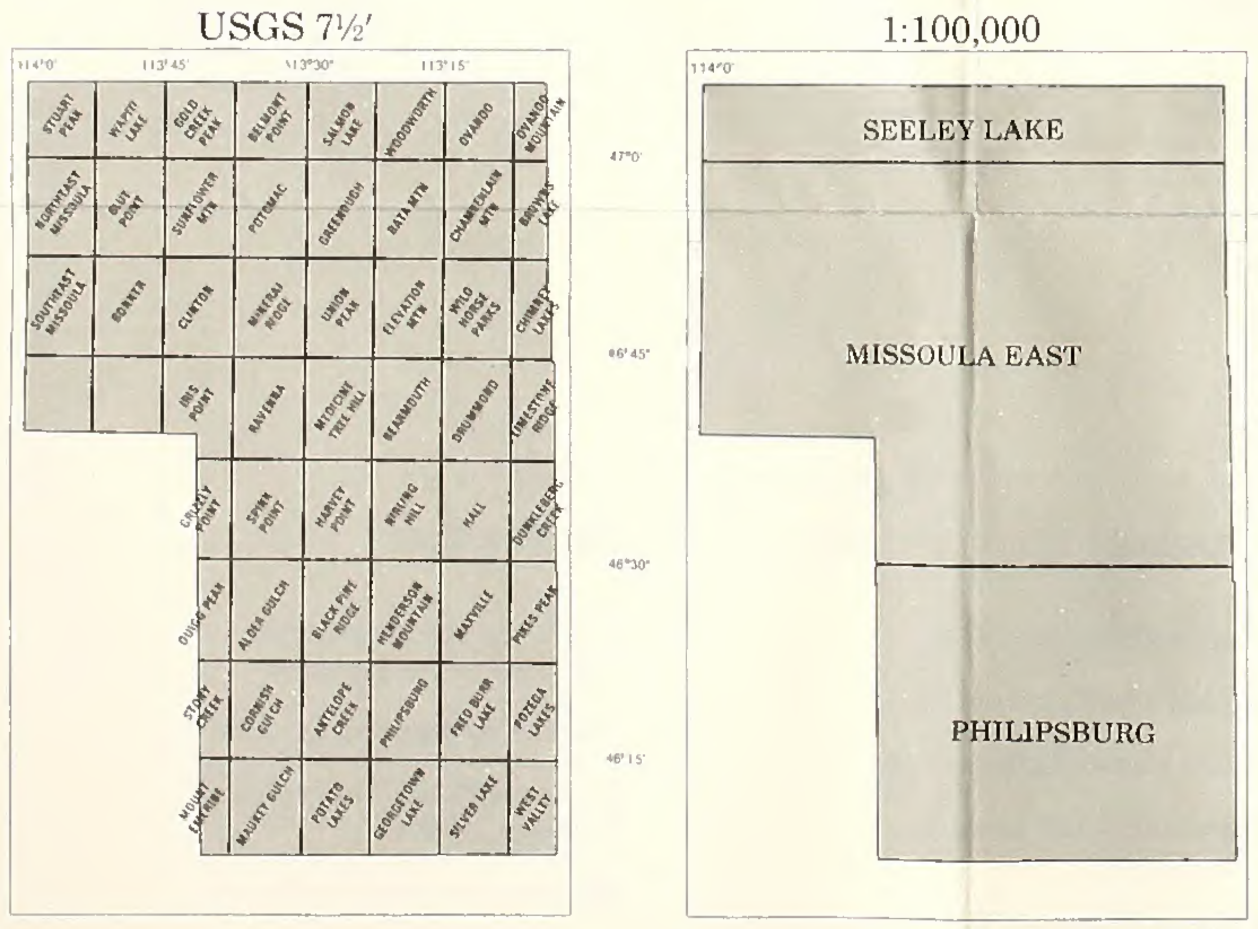
1984
RESOURCE MANAGEMENT PLAN
MAP OF
ALTERNATIVES C & D
(WEST HALF

1984
RESOURCE MANAGEMENT PLAN MAP OF
ALTERNATIVES C & D
(WEST HALF)

Garnet Resource Area
Butte District
Montana

LOCATION MAP

INDEX MAPS



LEGEND
GARNET RESOURCE AREA MANAGEMENT AREAS

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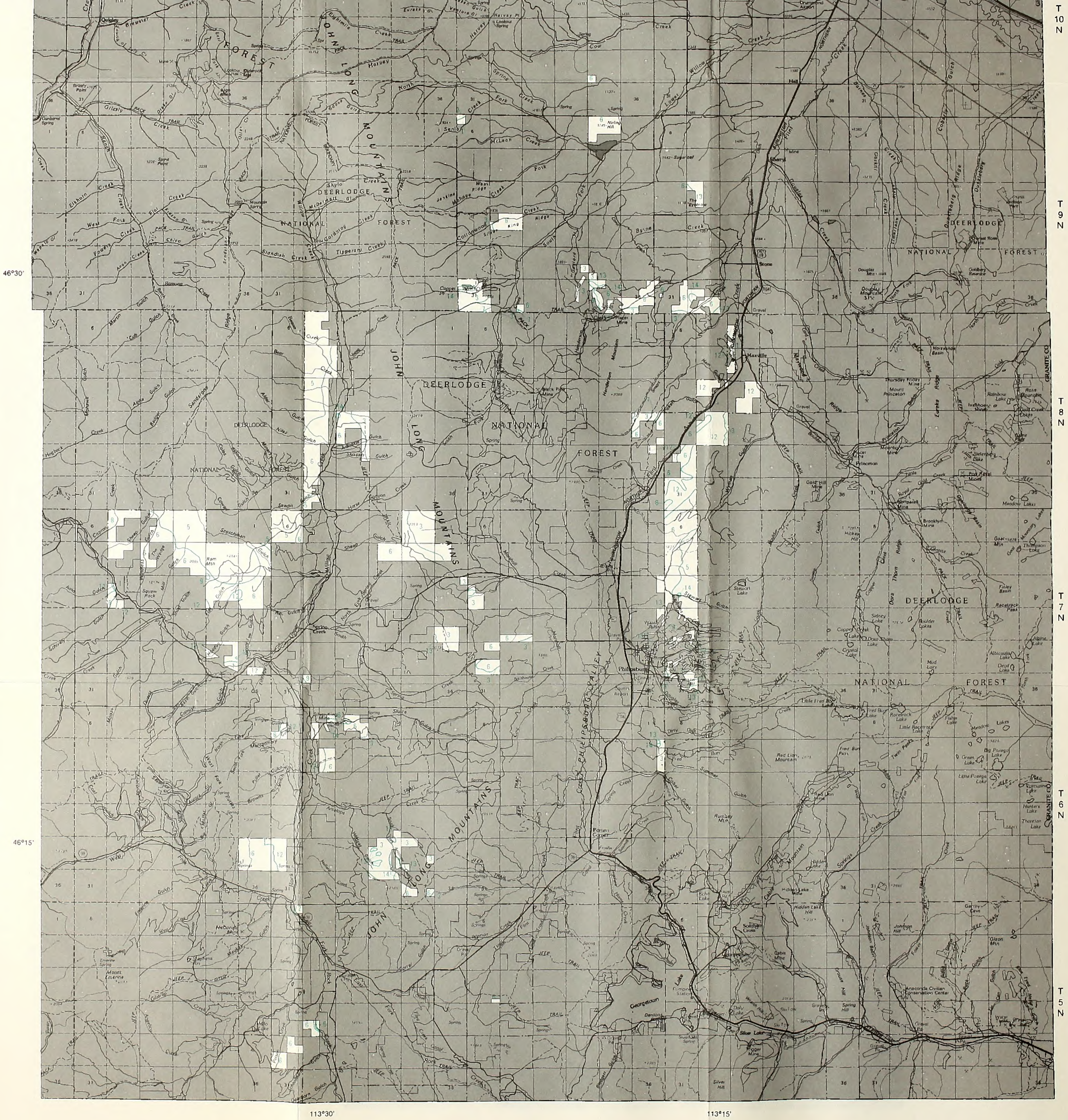

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1 0 1 2 3 4 5 6 7 8 9 10
KILOMETERS
1 0 1 2 3 4 5
MILES

SCALE
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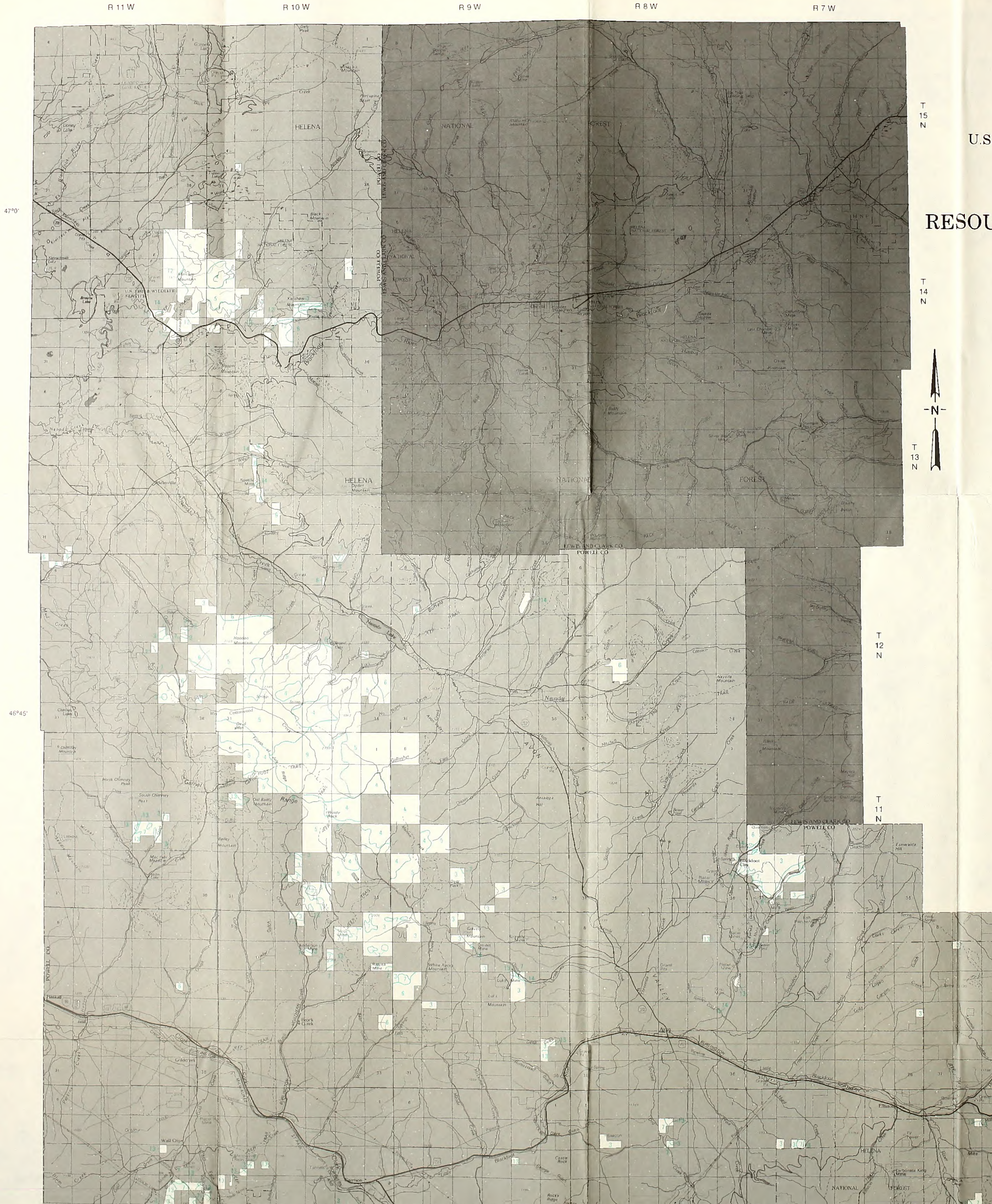
W½ ALTERNATIVES C & D (Front)

E½ ALTERNATIVES C & D (Back)



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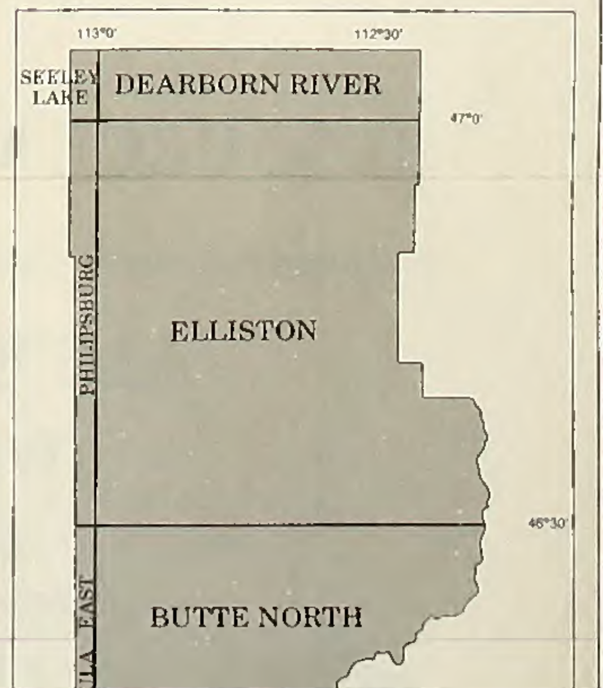
1984
RESOURCE MANAGEMENT PLAN MAP OF
ALTERNATIVE E
(EAST HALF)

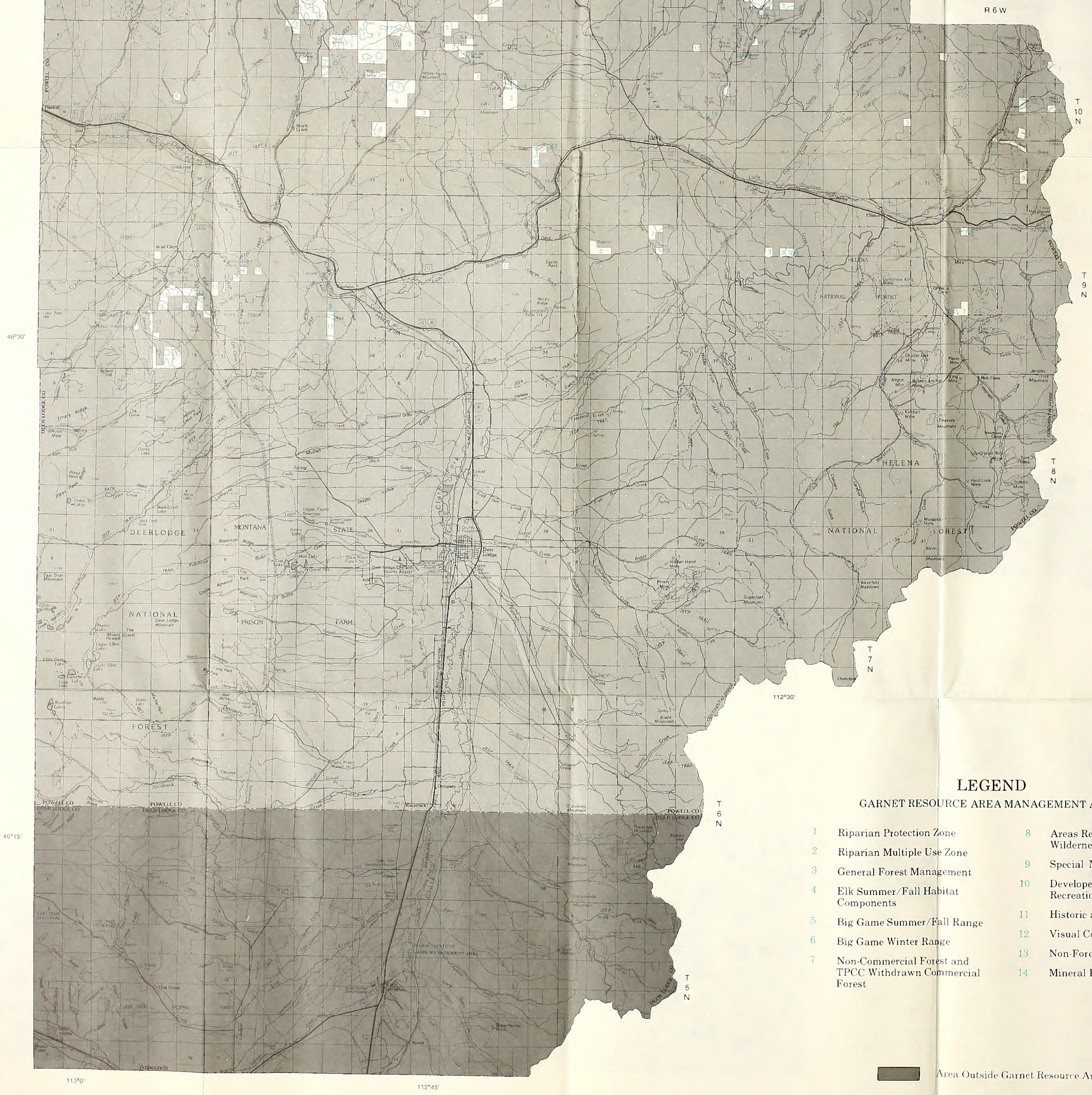
Garnet Resource Area
Butte District
Montana

LOCATION MAP

INDEX MAPS

1:100,000





INDEX MAPS

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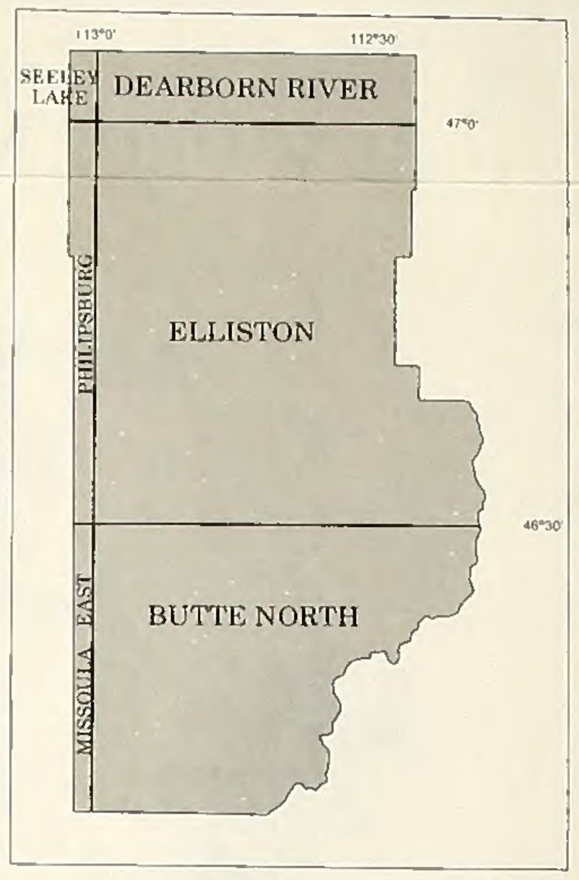
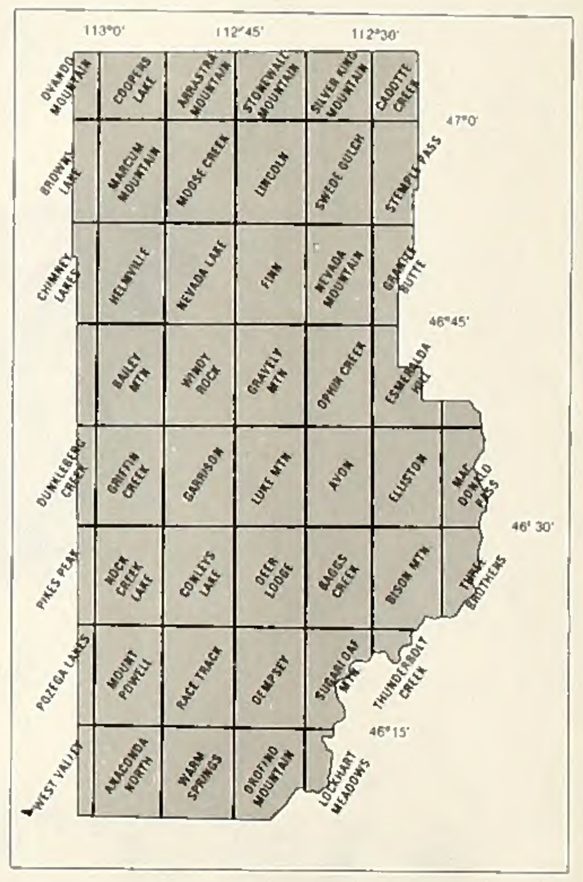


USGS 7½′



LEGEND

GARNET RESOURCE AREA MANAGEMENT AREAS

1 Riparian Protection Zone
2 Riparian Multiple Use Zone
3 General Forest Management
4 Elk Summer/Fall Habitat Components
5 Big Game Summer/Fall Range
6 Big Game Winter Range
7 Non-Commercial Forest and TPCC Withdrawn Commercial Forest
8 Areas Recommended for Wilderness Designation
9 Special Management Areas
10 Developed and Undeveloped Recreation Sites
11 Historic and Cultural Sites
12 Visual Corridor
13 Non-Forest Habitat
14 Mineral Production Area

▨ Area Outside Garnet Resource Area

SCALE

1:126,720 ½″ = 1 mile

Due to scale of map, parcels of BLM lands containing 10 acres or less may not be shown.

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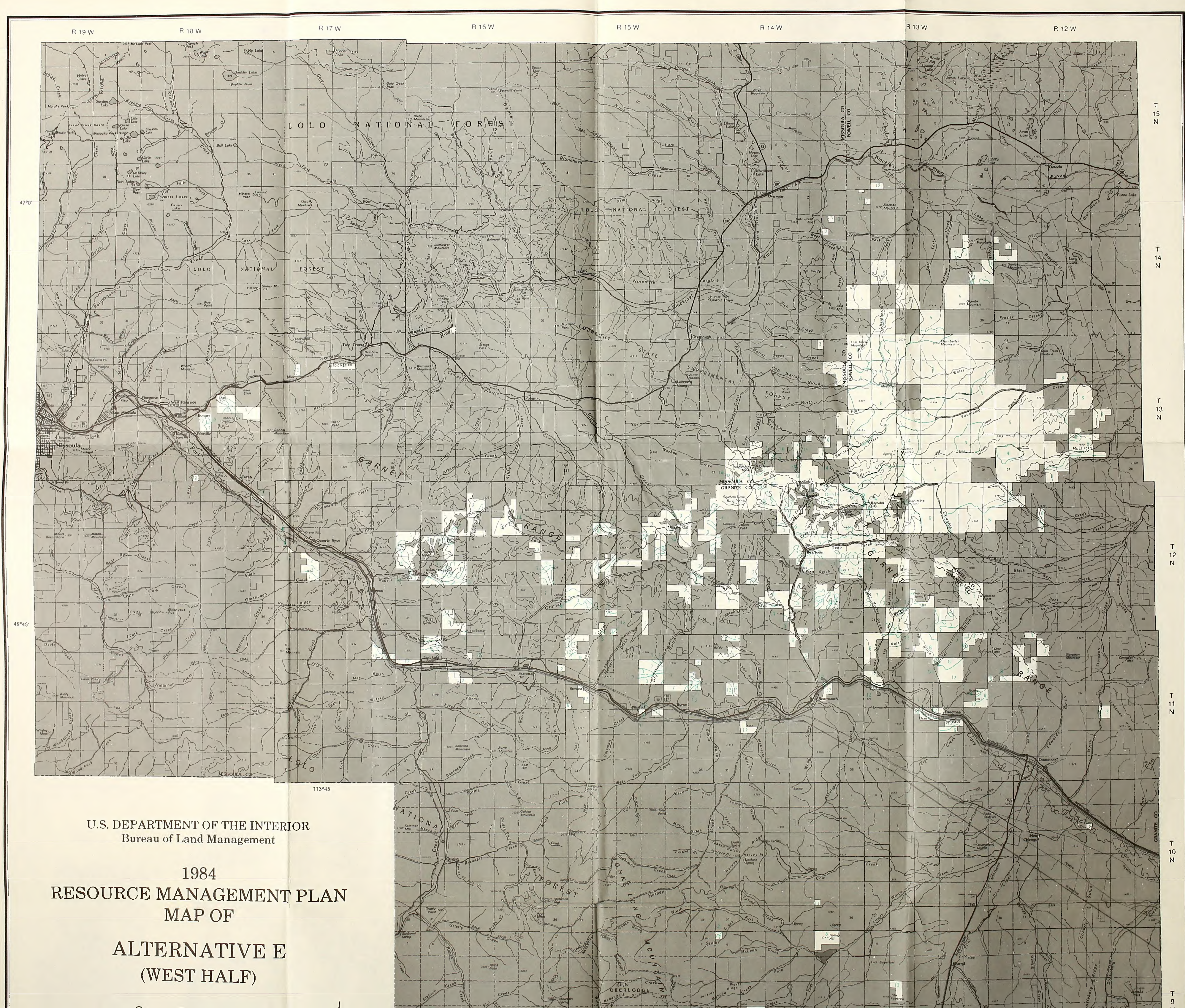

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN MAP OF
ALTERNATIVE E
(WEST HALF)

U.S. DEPARTMENT OF THE INTERIOR
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ALTERNATIVE E
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Garnet Resource Area
Butte District
Montana

LOCATION MAP

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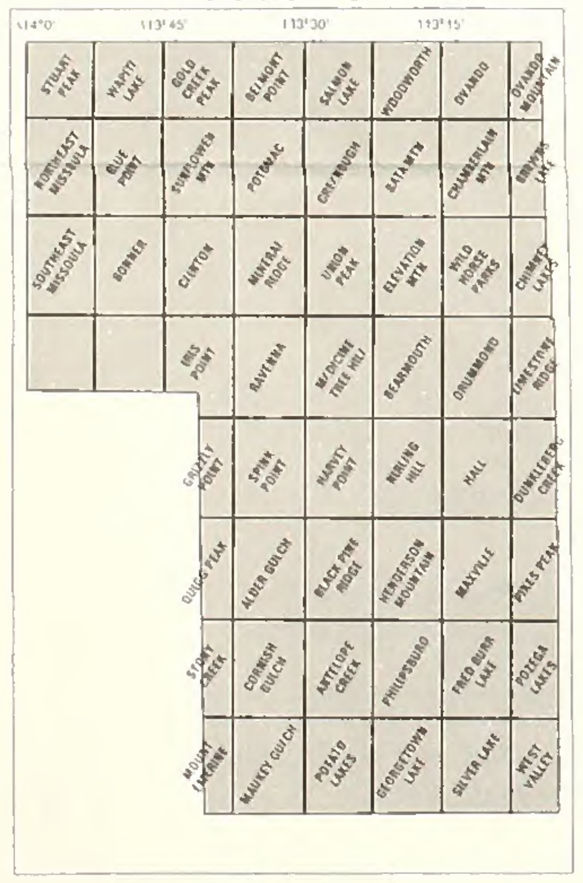
USGS 7½'



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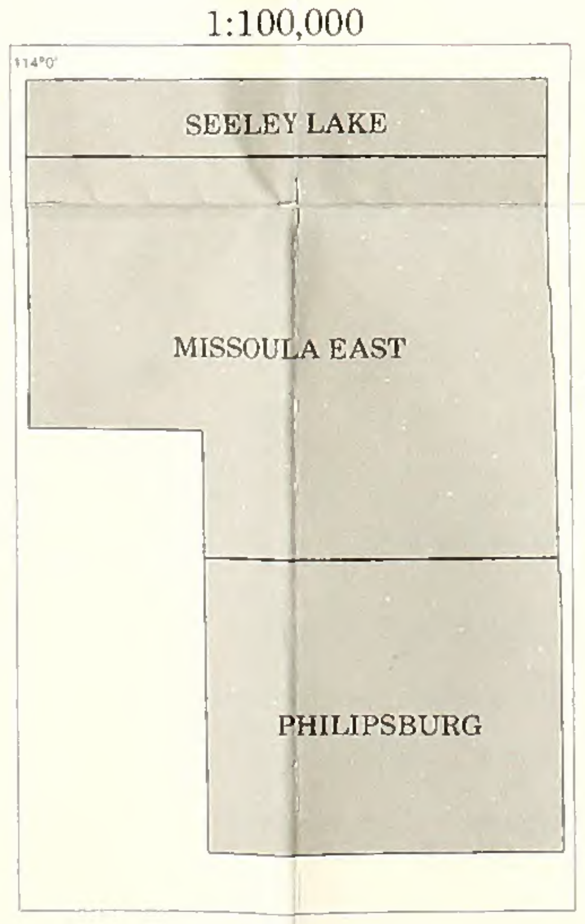

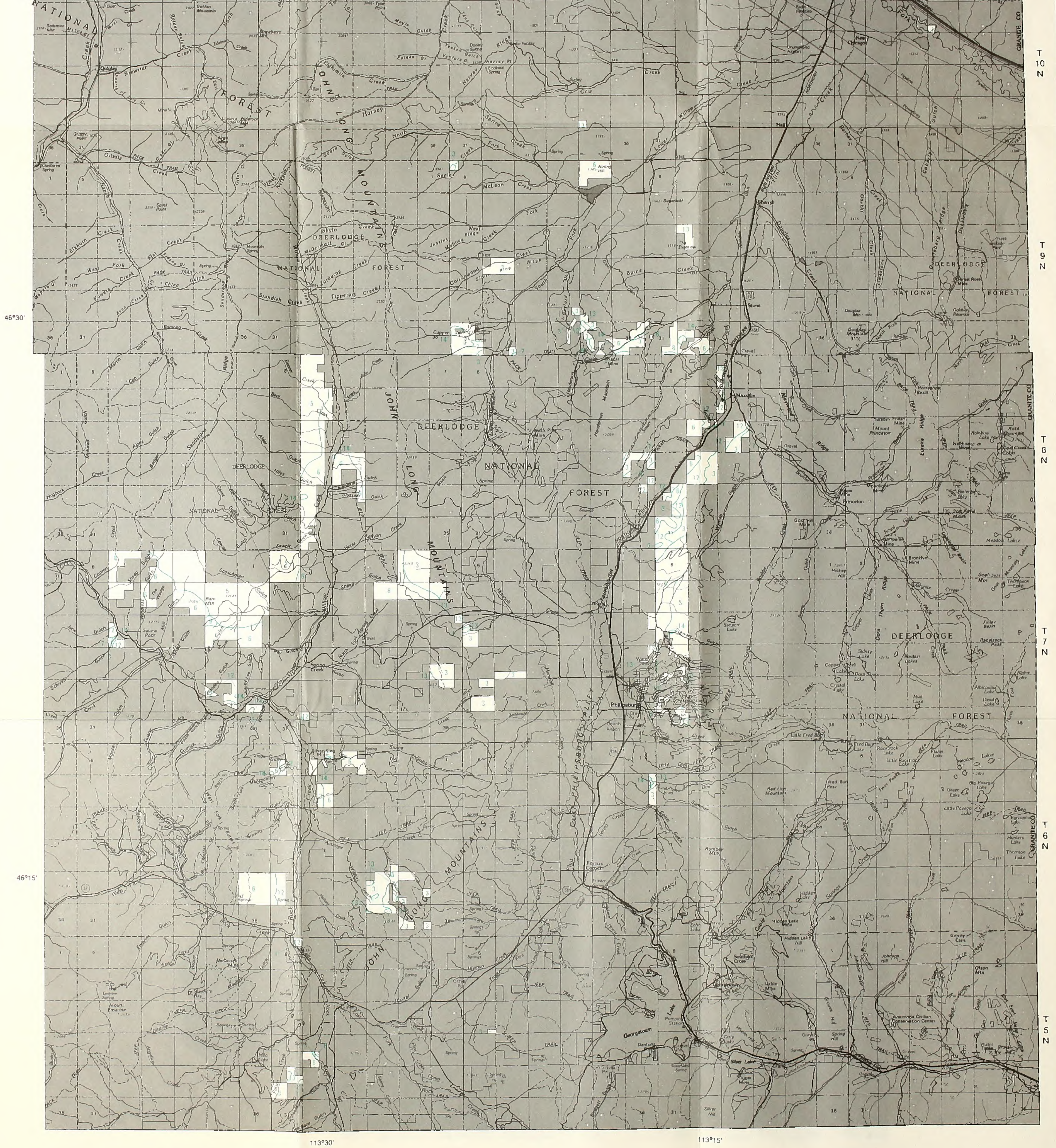

LEGEND

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1 0 1 2 3 4 5 6 7 8 9 10
KILOMETERS
1 0 1 2 3 4 5
MILES

SCALE
1:126,720 ½" = 1 mile

W½ ALTERNATIVE E (Front)

E½ ALTERNATIVE E (Back)

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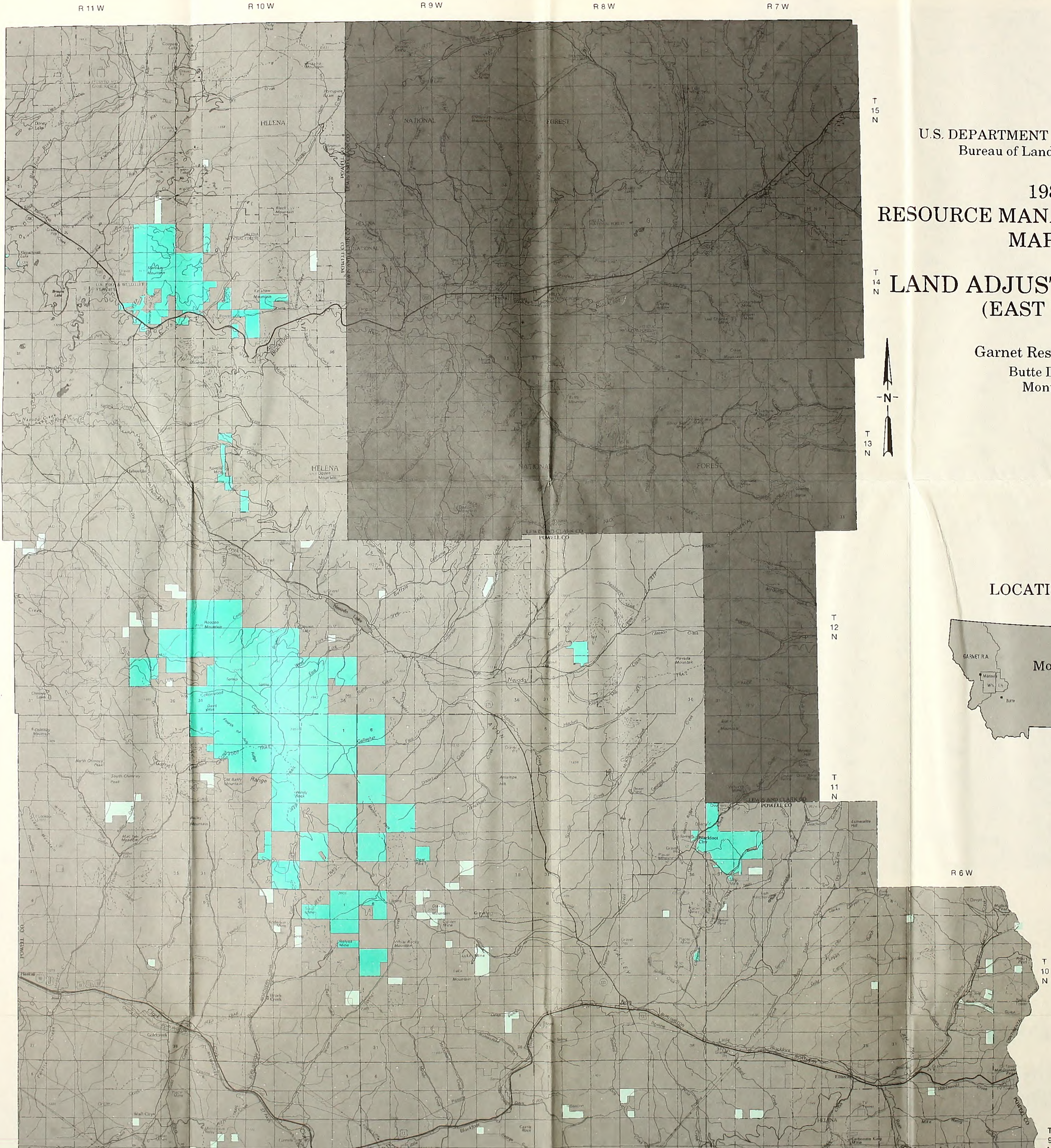
Denver, CO 80225



U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

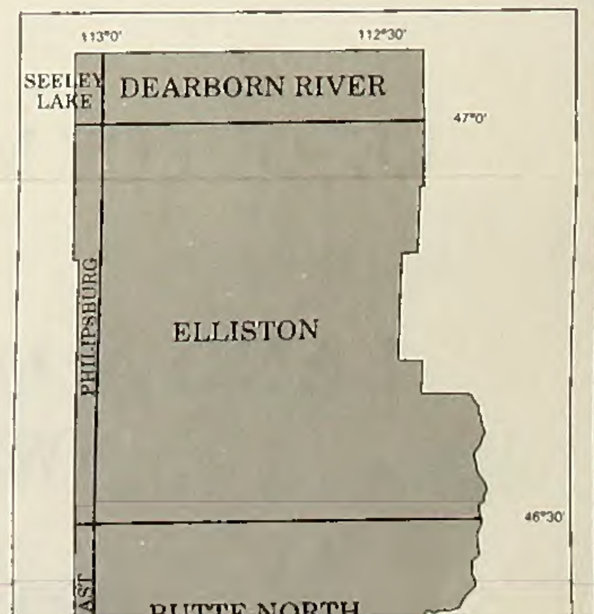
1984
RESOURCE MANAGEMENT PLAN MAP OF
LAND ADJUSTMENTS MAP
(EAST HALF)

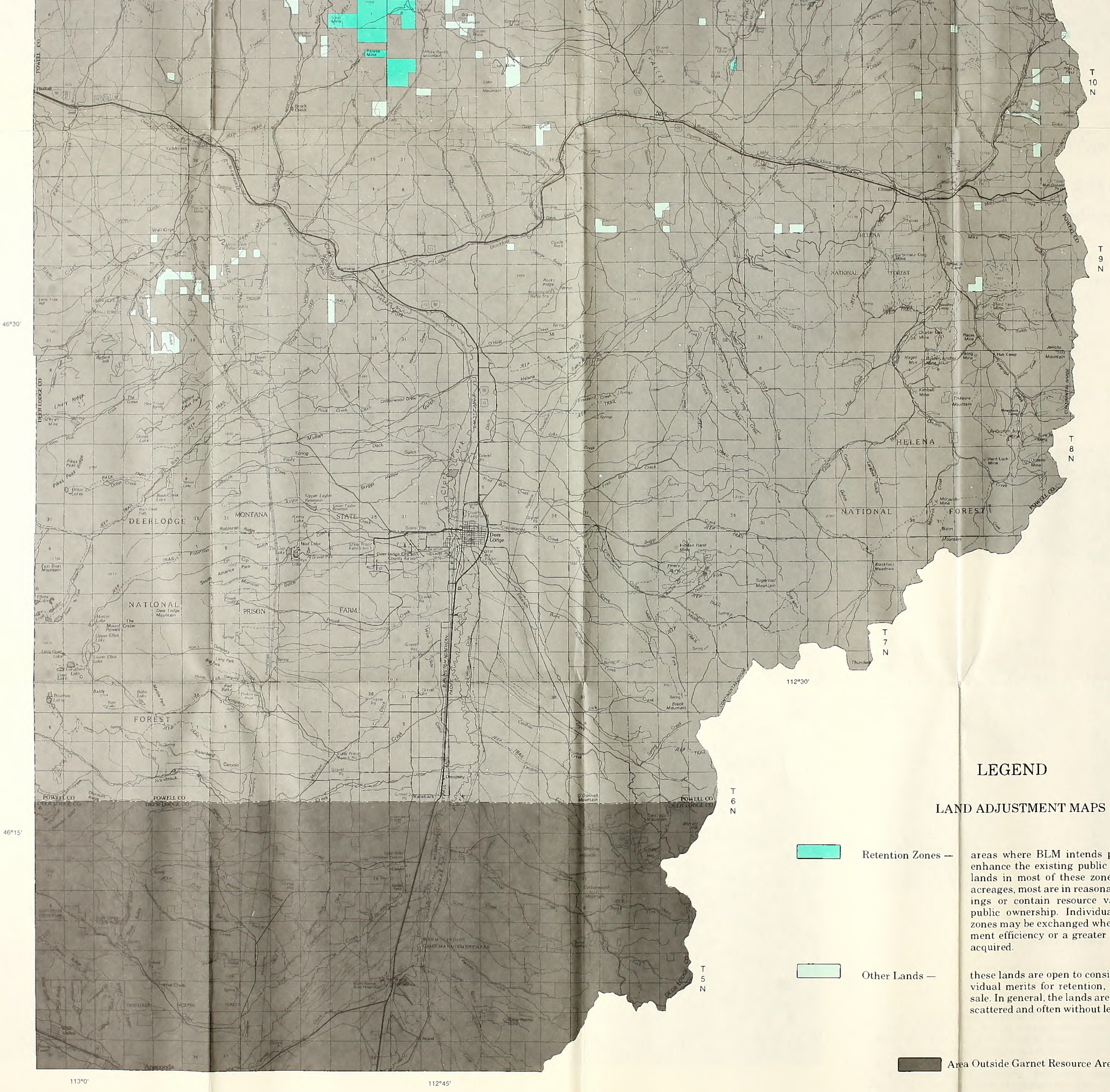
Garnet Resource Area
Butte District
Montana

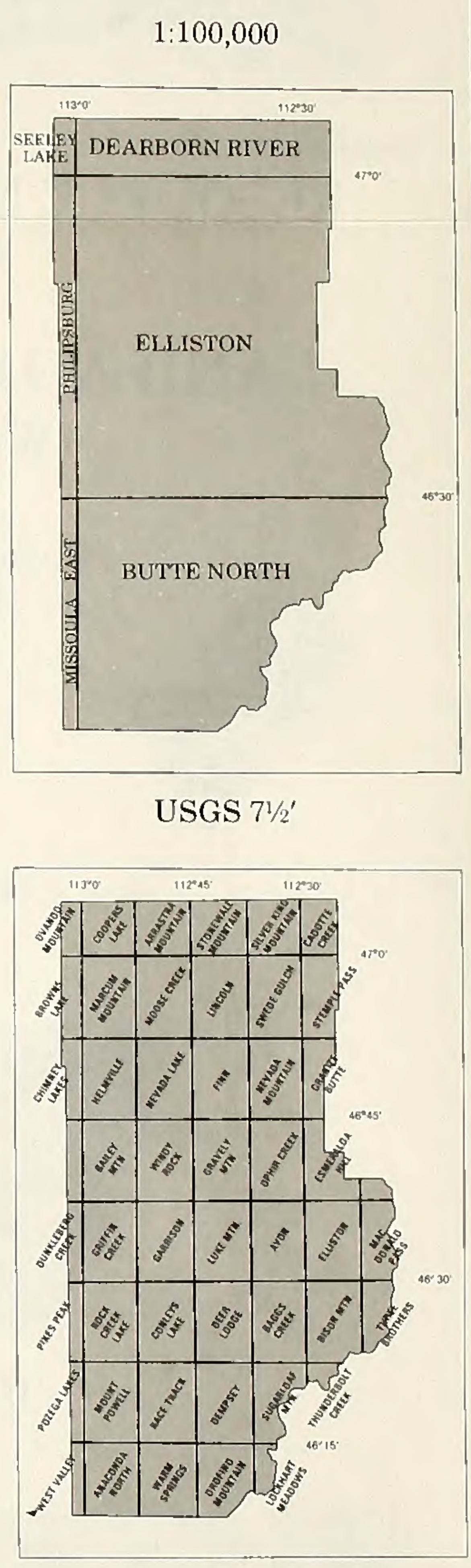
LOCATION MAP

INDEX MAPS

1:100,000







LEGEND

LAND ADJUSTMENT MAPS

🟩	Retention Zones —	areas where BLM intends primarily to retain or enhance the existing public land holdings. Public lands in most of these zones amount to sizeable acreages, most are in reasonably consolidated holdings or contain resource values appropriate for public ownership. Individual tracts in retention zones may be exchanged when significant management efficiency or a greater public value would be acquired.
☐	Other Lands —	these lands are open to consideration on their individual merits for retention, exchange, transfer or sale. In general, the lands are in small tracts, widely scattered and often without legal or physical access.
■	Area Outside Garnet Resource Area	

1 0 1 2 3 4 5 6 7 8 9 10
KILOMETERS
1 0 1 2 3 4 5
MILES

SCALE
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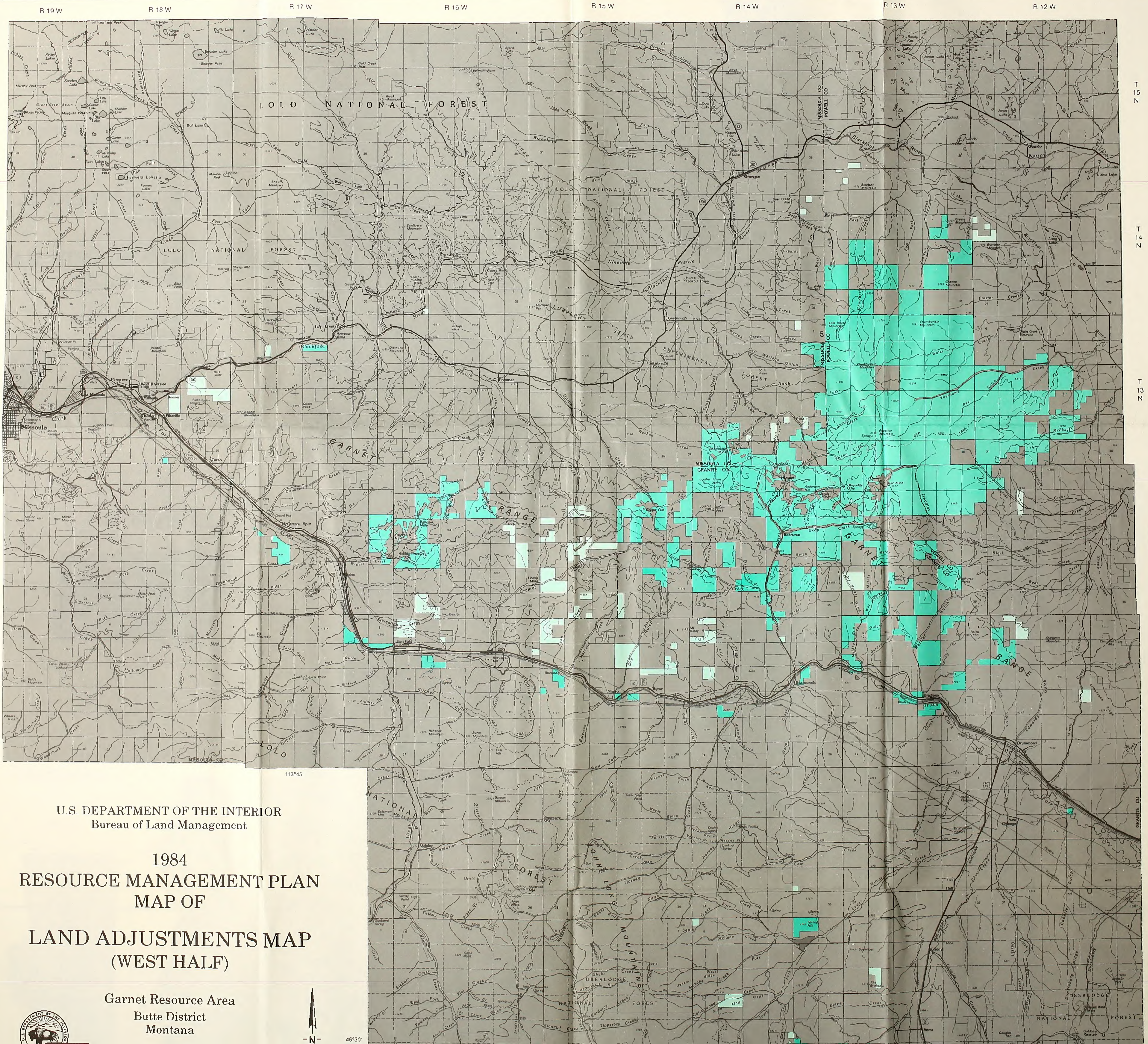

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN
MAP OF

LAND ADJUSTMENTS MAP
(WEST HALF)

Garnet Resource Area
Butte District
Montana

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN MAP OF

LAND ADJUSTMENTS MAP (WEST HALF)

Garnet Resource Area
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LOCATION MAP

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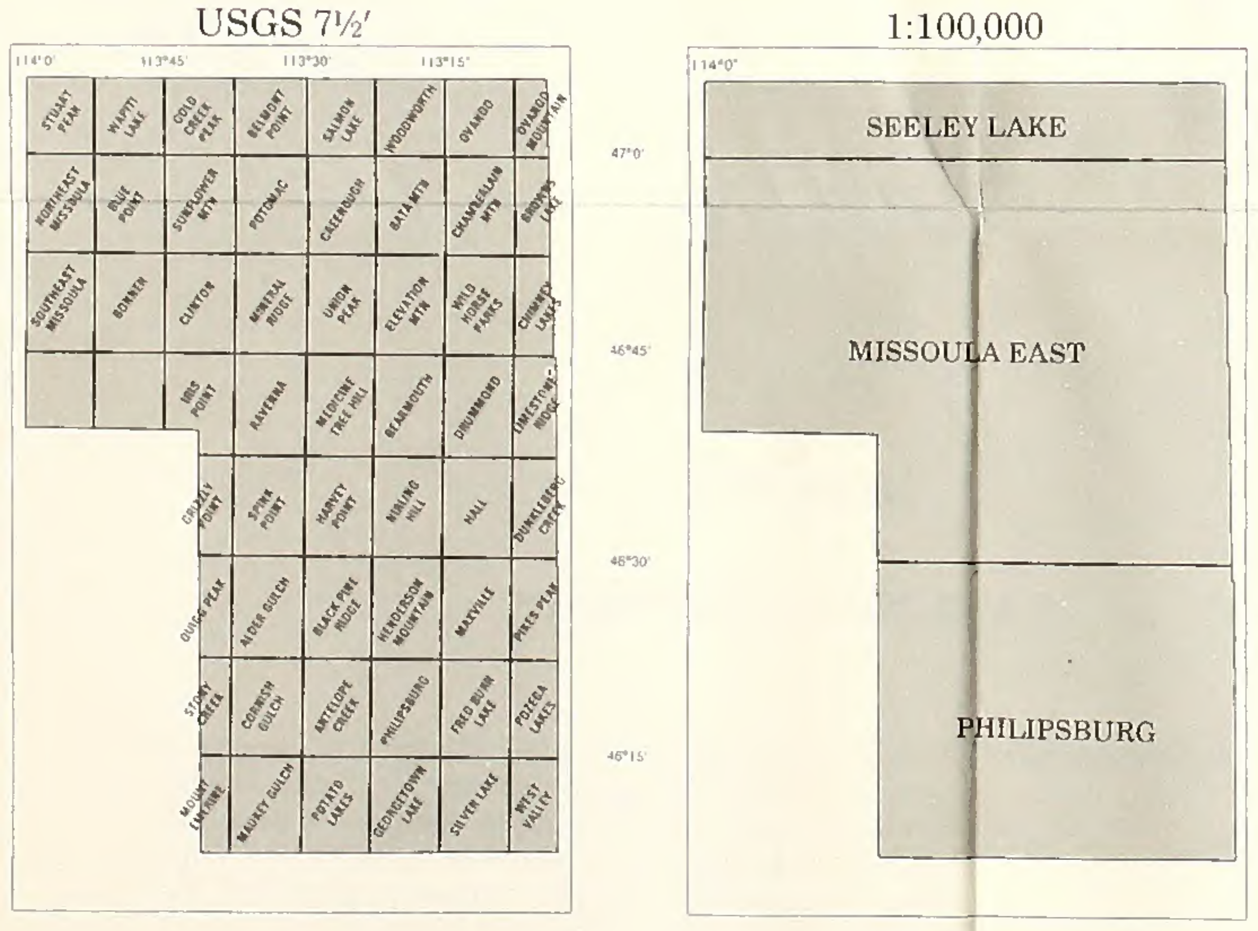
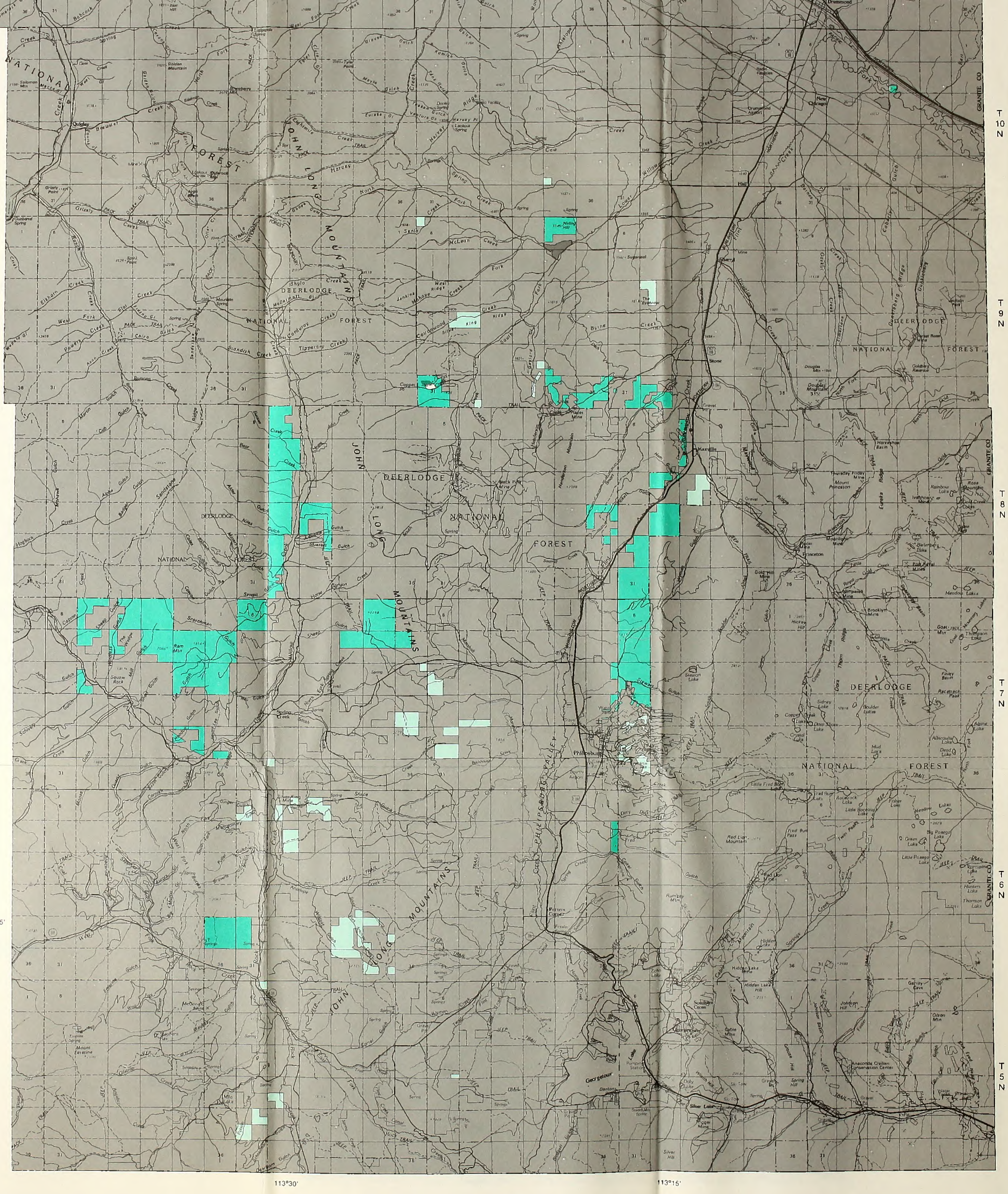

USGS 7½′

1:100,000



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SCALE

1:126,720 ½" = 1 mile

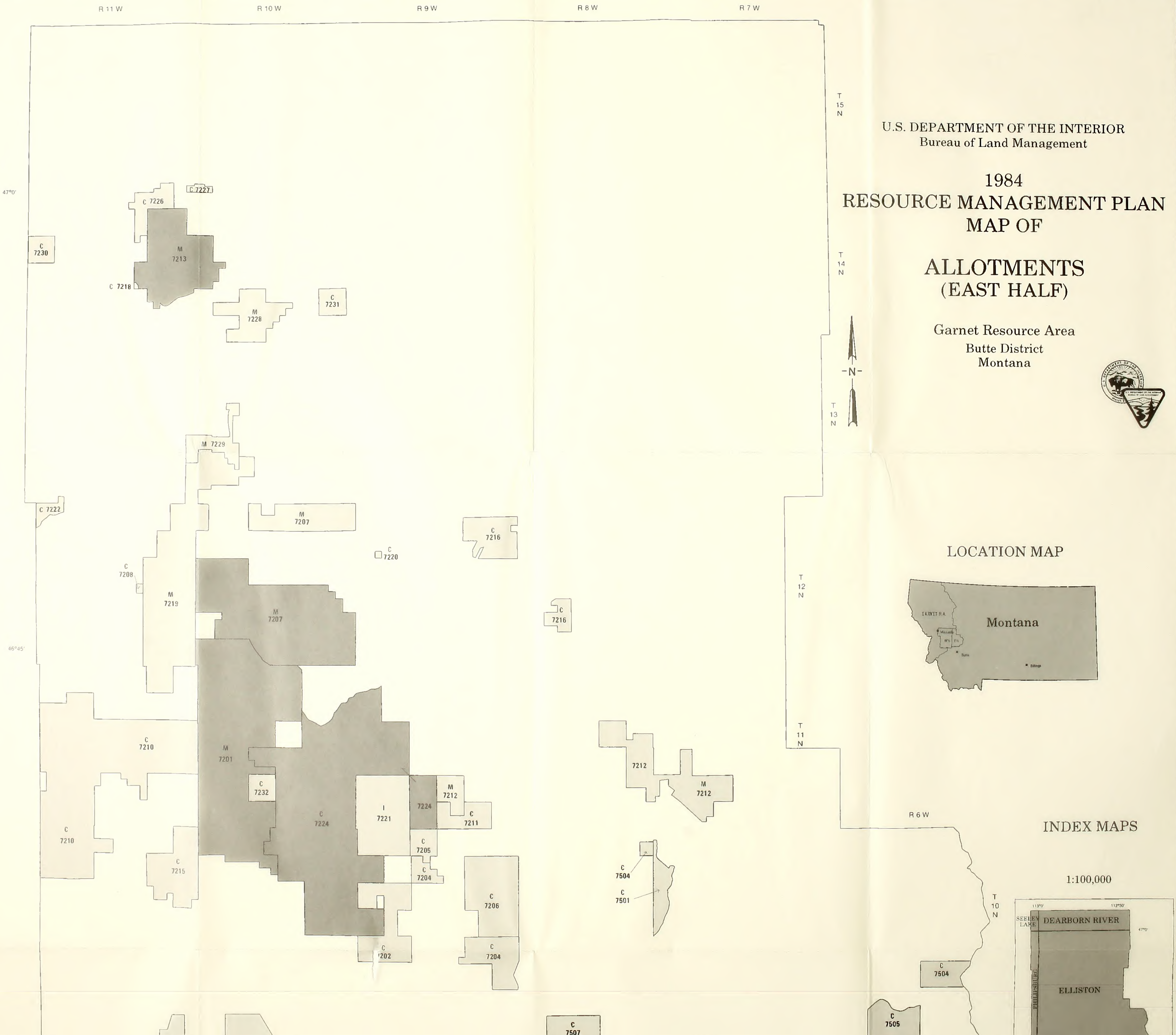
W½ LAND ADJUSTMENT MAP (Front)

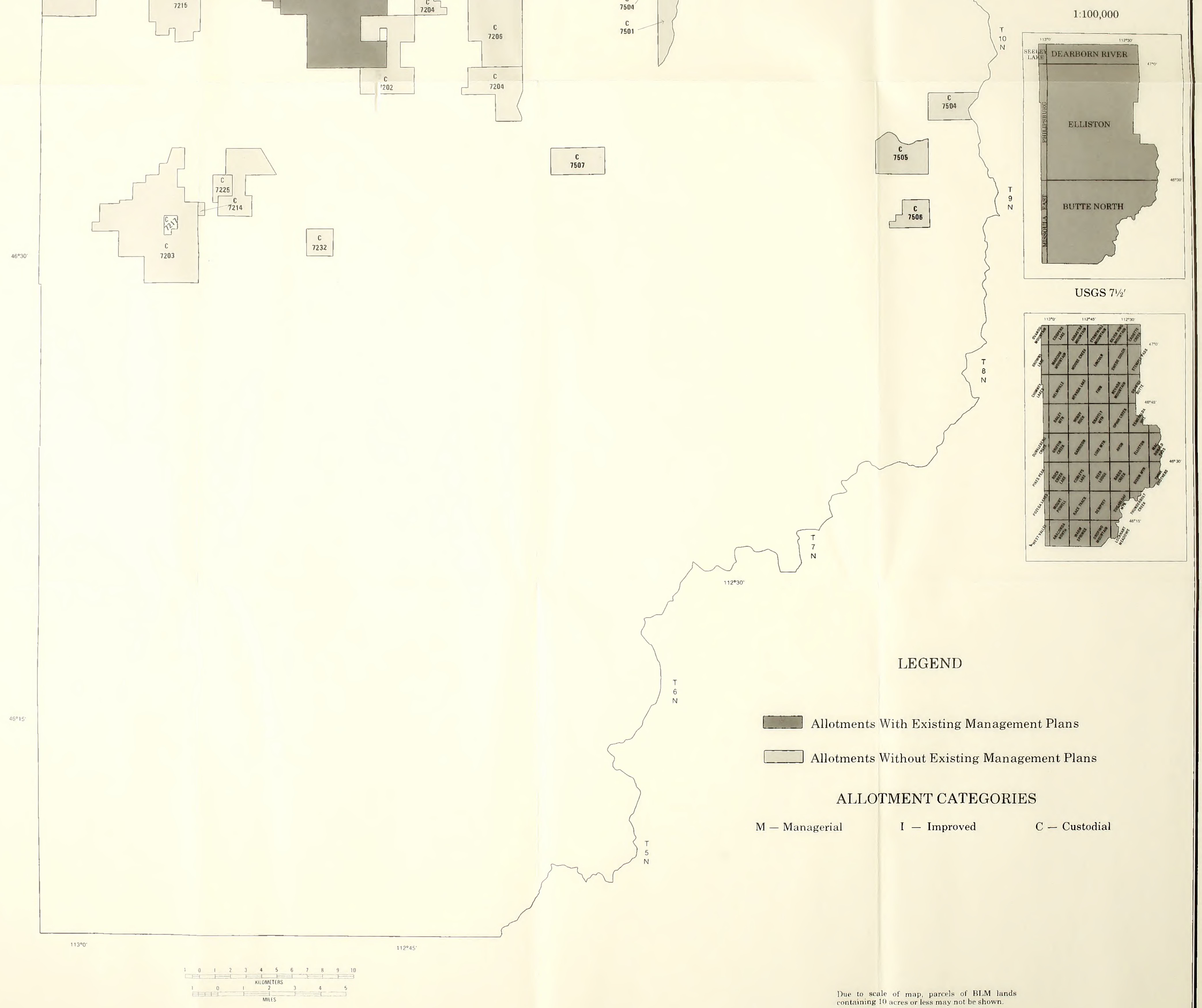
E½ LAND ADJUSTMENT MAP (Back)

U.S. DEPARTMENT OF THE INTERIOR
Bureau of Land Management

1984
RESOURCE MANAGEMENT PLAN MAP OF
ALLOTMENTS
(EAST HALF)

Garnet Resource Area
Butte District
Montana





LEGEND

▩	Allotments With Existing Management Plans
☐	Allotments Without Existing Management Plans

ALLOTMENT CATEGORIES

M — Managerial
I — Improved
C — Custodial

SCALE
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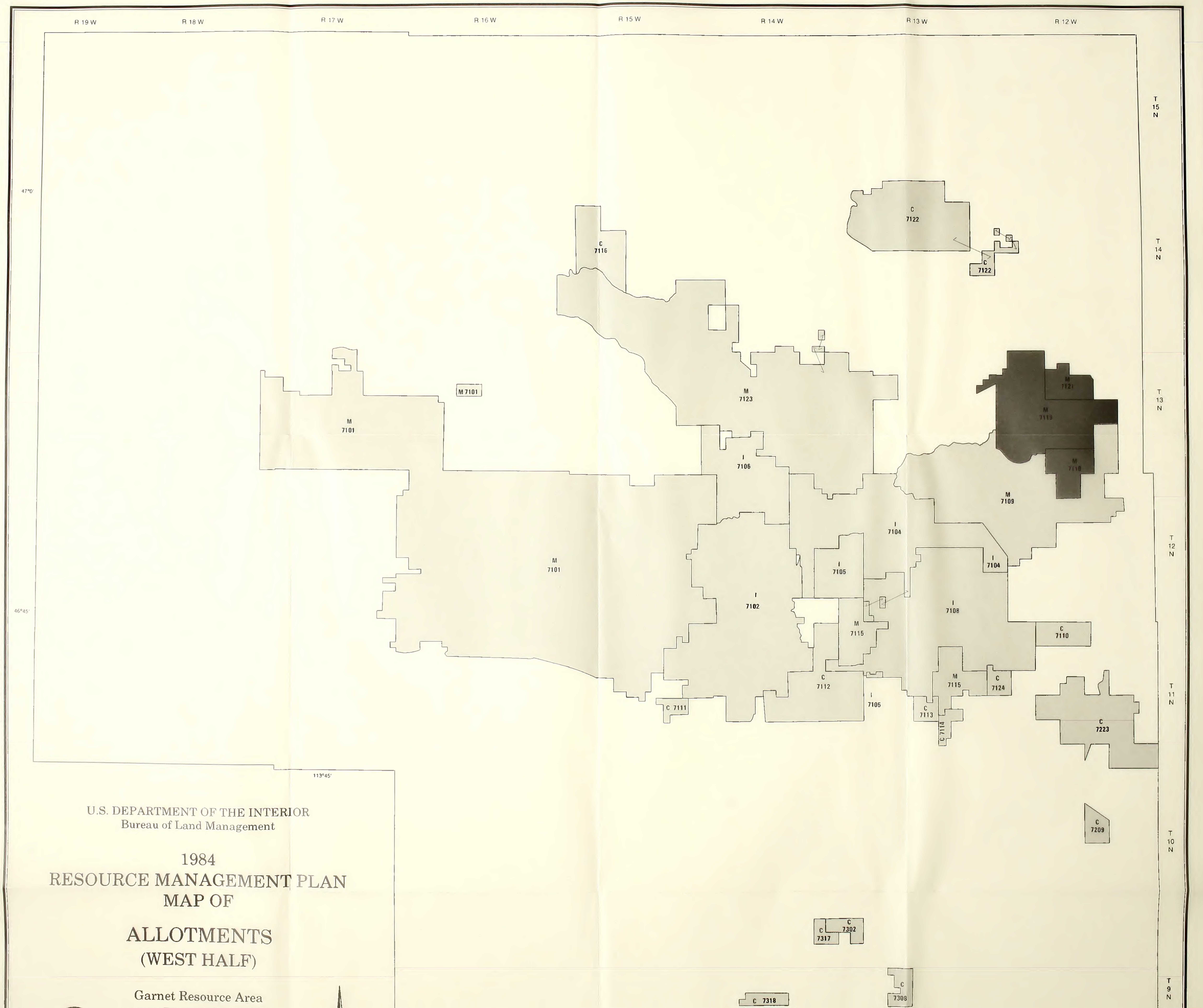

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1984
RESOURCE MANAGEMENT PLAN MAP OF
ALLOTMENTS
(WEST HALF)

Garnet Resource Area

U.S. DEPARTMENT OF THE INTERIOR
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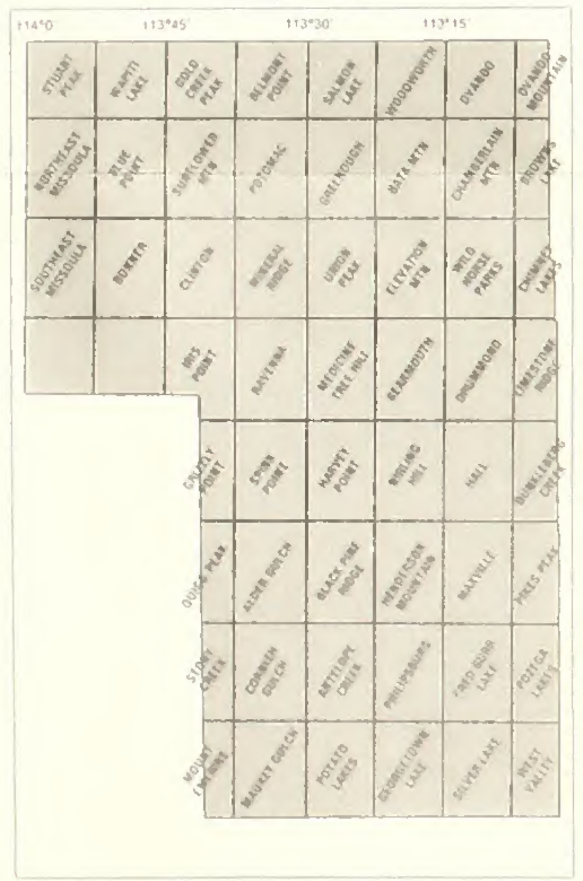

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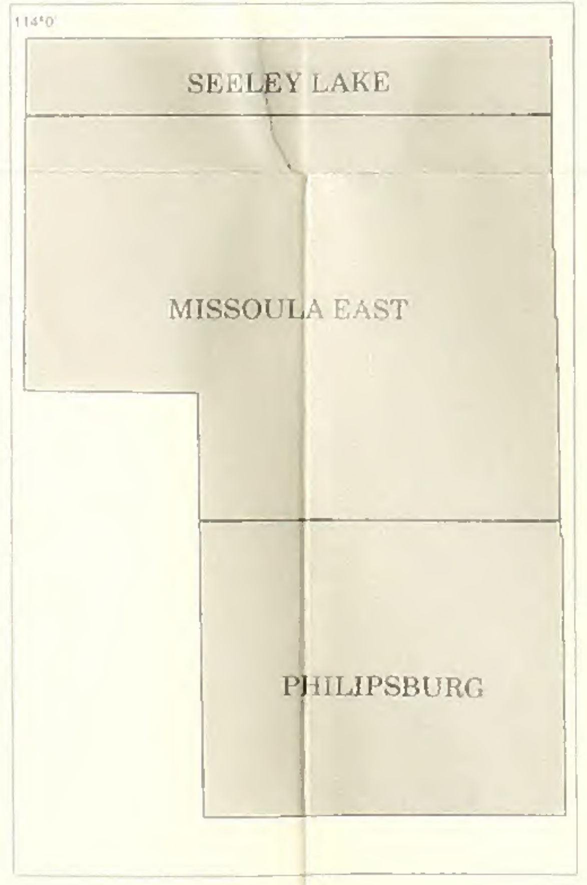

LEGEND

▨ Allotments With Existing Management Plans

☐ Allotments Without Existing Management Plans

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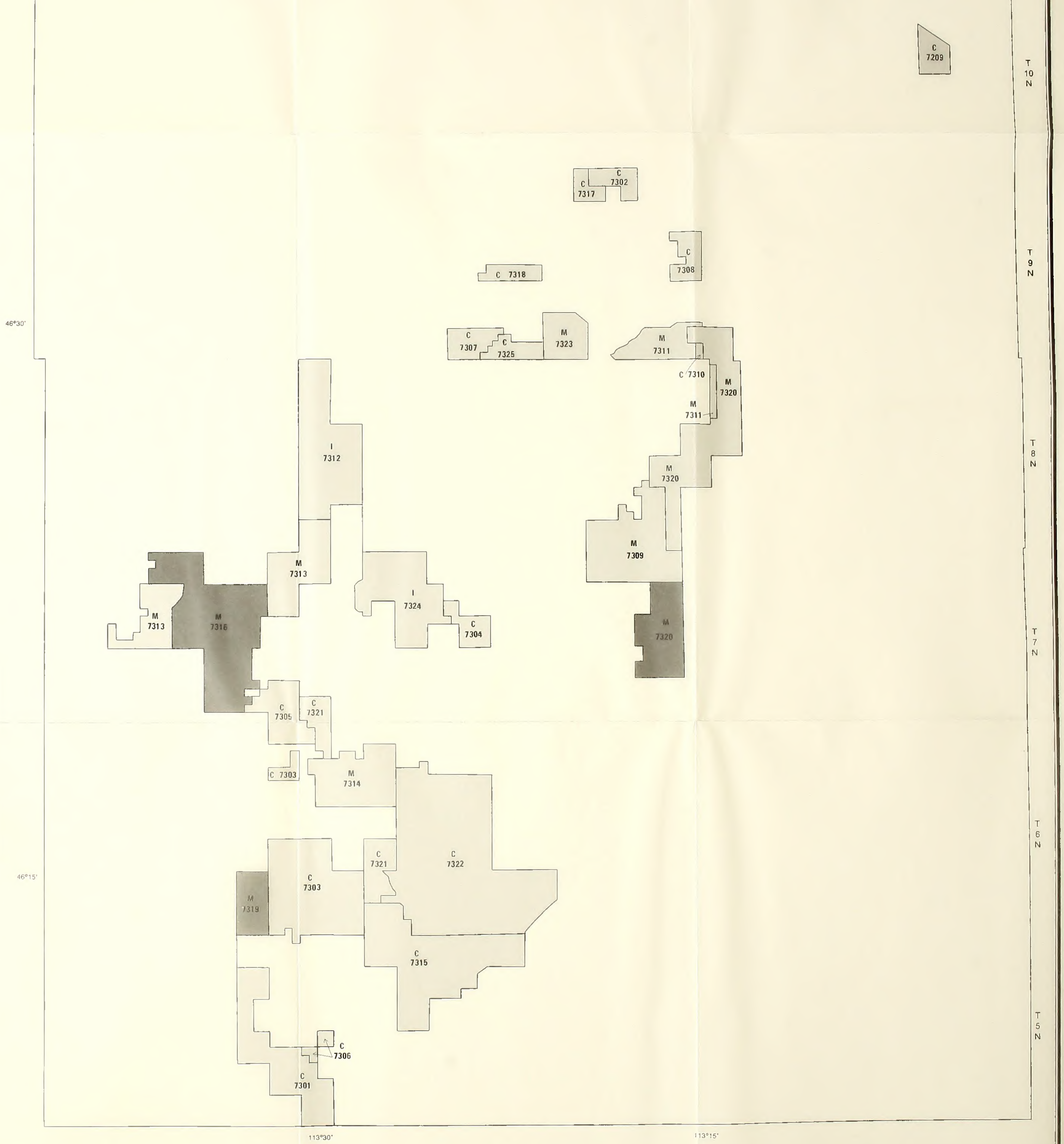

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